



INTELLEKTUELL AUSGAB RAPPORT ZUR COLLECTE VU BEWÉISER



Project N° 2019-1-FI01-KA203-060718



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Préface

Dëse Rapport presentéiert d'Resultater vu nationalen Interviewen, déi 2020 an alle Partnerlänner 2020 mat Entrepreneuren a Vertrieber vu PME, Enseignantinnen a Studenten durchgeführt gi sinn. Si bezieen sech op d'formationn entrepreneuriale an d'Zesummenaarbecht tëscht Universitëten an Entrepreneuren. De Schwéierpunkt vun der Fuerschung läit dobäi dorobber déi Elementer ze identifizéieren, déi d'Erzéiung zum Entrepreneursgeescht an Innovatioun beaflossen.

A new wave of economic development is sweeping the world, with entrepreneurship and innovation as the primary catalyst

---Morris, Kuratko and Cornwall (2013).

De Rapport ass vun den Auteuren iwwerpréift ginn, déi verschidden Organisatiounen aus Europa an innerhalb vun der Projekte Ekipp vertrieben:

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Acronyms

CPS	Creative Problem Solving
DT	Design Thinking
HEI	Higher Education Institution (Établissement d'enseignement supérieur)
IO	Intellectual Output (Production intellectuelle)
MOOC	Massive Online Open Course
MSS	Centre de formation Miðstöð símenntunar á Suðurensjum
SG	Serious Game (Jeu Sérieux)
PME	Petites et Moyennes Entreprises
TIC	Technologies de l'information et de la communication
UBC	University Business Collaboration (Collaboration entre les universités et les entreprises)
UTU	Université of Turku
UE	Union Européenne
UX	User Experience (Expérience Utilisateur)
VET	Vocational Education and Training (Enseignement et formation professionnels)

I. Hannergrond an Iwwersiicht iwert de Rapport

De CDTMOOC-Projet ënnerstëtzt eng oppen Educatioun an innovativ Praktiken am digitalen Zäitalter duerch een interaktiven a gameifizeierte MOOC, an digitale Guiden déi innovativ Methode fir hiren Notzen an der alldeeglecher Praxis beschreiwen.

De Projet huet als Ziel d' Léieremfeld duerch innovativ Pedagogik zu transforméieren. Tatsächlech geet et bei dësem Projet drëms, verschidde Methodologien wéi de Creative Problem Solving, Design Thinking an Human-Centred Design anzesetzen, fir een modernt Entreprenariat ze ënnerstëtzen, eng Verännerung an der Praxis unzereegen. Des Methodologien haten sech an enger intensiver Testphase vum Pilotprojet bewäert.

Am Kontext vum intellektuellen Output 1 "Rapport zur Collecte vu BeWéiser", ass Fuerschung op verschidde Niveaue duerchgefouert ginn:

- **Recherche documentaire** iwert d' Situatioun vum Enseignement supérieure a Verbindung mam Léieren an der Ausbildung zum Entreprenariat an Europa
- **Fokusgruppeinterview** a fënnf EU-Partnerlänner - Finnland, Italien, Frankräich, Lëtzebuerg an Island. D' Partner hunn eng Recherche mat Interviewquestionnairen duerchgefouert mat verschidde Zilgruppen dorënner Dozenten, Studenten an Entrepreneuren. All Partnerorganisatioun huet ee Bericht iwert seng Konklusiounen am Bezuch op Formatioun am Entreprenariat virgeluecht. Fënnf Berichter si gesammelt ginn. UTU huet d' Methodik vun der Recherche formuléiert an analyséiert d' Resultater. D' Recherche ass tëschent Dezember 2019 a Mee 2020 duerchgefouert ginn.

Bei der Recherche um Terrain hunn d' Partner ee standardiséierten Questionnaire benotzt an deem och oppe Froe waren. De Questionnaire ass an der Annexe 1 ze fannen.

II. Definitiou vum Entrepreneuriat an der Ausbildung zum Entrepreneuriat

Et schéngt wichteg dëse Rapport mat der Definitiou vun de Konzepter, déi am Kader vun dësem Projet an dëser Analyse benotzt gi sinn, unzefänken :

Entrepreneuriat kann definéiert ginn als "all Versuch eng nei Entreprise oder en neie Projet ze grënnen, Wéi z. B. eng selbstänneg Aktivitéit, eng nei kommerziell Organisatioun oder d'Erweiterung vun enger Entreprise, duerch eng Einzelpersoun, eng Ekipp vun Einzelpersonen oder etabléiert Entreprise"¹.

Ziel vun der Educatioun **zum Entrepreneuriat ass et**, een Esprit entrepreneurial ze entwéckelen, d.h. eng Rei vun Astellungen, Kompetenzen an Fäegkeeten ze entdecken, sech Ressourcen ze erschléissen an, an der Onsécherheet Valeur zu créeieren².

D'Entrepreneuriat ass allerdéngs méi wéi nëmmen eng Entreprise ze grënnen. Et ass och eng Haltung, déi sech drop konzentréiert Chancen ze sichen, Risiken anzegoen, resilient ze sinn, Ressourcë kreativ ze notzen an eng Iddien ëmzesetzen³. Et geet drëms, nei Geleeënheeten ze schafen an nei Konzepter an engem onsécheren an onbekanntem Ëmfeld ëmzesetzen⁴. Weltwäit bidden iwwer 3.000 Héichschoulen an Universitëite Coursen zum Thema Entrepreneuriat un⁵. Eng grouss Unzuel vun Universitëite bidde Programmer am Entrepreneuriat mat Zertifikater, Bachelor oder Master-Ofschloss un. Et schéngt, wéi wann sech d'Vitesse a Richtung vun enger Ausbildung am Entrepreneuriat acceleréiert huet an dat d'Efforte fir Fakultéiten, Studenten a Verwaltung ze erreche verstärkt gi sinn. Nom Kuratko (2015) ass d'Entrepreneuriat éischer een néit akademesch Fach an handelt vu kontinuéierlecher Innovatioun a Kreativitéit.

Gamifizéierung bezitt sech op d'Konzept vum Spillen a d'Benotzen vu Spillmechanismen fir Applikatiounen déi net aus dem Beräich vun de Spiller sinn. Et erméiglecht "Learning by doing"⁶ an

¹ Reynolds, P. D., Hay, M., & Camp, S. M. (1999). Global Entrepreneurship Monitor: Executive Report. Kaufman Centre for Entrepreneurial Leadership, 3.

² Davis, Hall & Mayer, 2016; McGrath & MacMillan, 2000

³ Kuratko, D.F., Morris, M. H. Examining the future trajectory of entrepreneurship. Journal of Small Business Management (2018) 56 (1), pp. 11-23

⁴ Neck and Green 2011

⁵ Kuratko 2017

⁶ A. I. Diane. Gamification of Entrepreneurship Education. Teaching Brief. Decision Sciences Journal of Innovative Education, Volume 18 Number 2, April 2020

ëmfaasst Spieldesign-Dynamik⁷, -Mechanik⁸ an -Elementer^{9 10}, déi an Aktivitéite fir verschidden Zwecker agebonne ginn, fir déi di Léieren ze motivéieren, néi Fäegkeeten ze kréien oder Verhalen ze veränneren^{11 12}. Millennials sinn techesch verséiert an am Allgemengen begeeschtert Notzer vun interaktive Medien an Online-Videospiller¹³; dowéinst sinn si ganz oppen fir den Asaatz vun der Gamifizéierung am Unterrecht an erwaarden villäicht souguer den Asaz vun ausgefeilten Simulatiounen, fir hier Interessen an Léieraktivitéiten ze ënnerstëtzen¹⁴.

D'Étappen an d'Aktivitéiten vum **Creative Problem Solving (CPS)** lossen sech an dräi Kategorien andeele: 1) Verstoe vum Problem, 2) Sammelen vun Informatiounen, fir néi Iddien ze generéieren an de Problem ze léisen, a schliisslech 3) Preparatioun op d'Ëmsetzen an Aktivitéit.

Design Thinking (DT) baséiert op enger multidisziplinärer, menschenzentrierter Approche, déi d'abduktivt Denken kombinéiert an tëschent analyteschen a kreativen Argumentatiounsmethoden wiesselt¹⁵. DT gëtt säit kuerzem als kollaboratiivt Instrument zur Problemléisung agesat, well Design als strategesch Ressource unerkannt ass¹⁶. Et ginn kreativ Outilen wéi den Storytelling, Prototyping an iterativt Experimentéieren genotzt.

University-Business-Collaboration (UBC) bezitt sech an der Reegel op d'Recherche (Technologietransfer und Innovatioun), op d'Formatioun (lifelong learning/formation continu) oder op soziaalt/kulturellt Engagement am Aklang mat regionalen Entwécklungsziler. Doriwwer eraus ëmfaasst des Panoplie un Aktivitéiten ënnerschiddlech Aarten vun Acteuren, vill Beräicher vun den Universitétéiten an erfuerdert verschidden Strukturen an Mechanismen, fir Realitéit kennen ze ginn¹⁷.

⁷ Emotions, Narrative, Constraints, Progression, Relations

⁸ Challenging, competing, cooperating, playing in turns, rewarding, providing feedback, relying on chance, acquiring resources, making transactions, reaching win / loss states

⁹ Achievements, Avatars, Badges, "Boss fights", Collections, Combat, Content Unlocking, Gifting, Leader boards, Levels, Performance Graphs, Points, Quests, Social Graph, Teams, Time, Virtual Goods

¹⁰ Deterding et al., 2011; Seaborn & Fels, 2015

¹¹ Deterding, 2012

¹² Zichermann and Cunningham, 2011, p. 14

¹³ Hanus & Fox, 2015

¹⁴ El-Masri, Tarhini, Hassouna, & Elyas, 2015

¹⁵ Liedtka, 2015; Martin, 2009

¹⁶ Carlgren, Elmquist et al., 2016

¹⁷ U3M-AL project, Deliverable 1.1. Good practices of 3M in EU universities, Final report, February 2013

III. Objektiv an Ëmfang vum Rapport zur Kollekte vu BeWéiser

Den Zweck vun dësem Rapport besteet doranner, d' **Bedürfnisser an d'Erausforderungen par Rapport zur Bildung am Léieren an de Beräicher Entrepreneuriat an Innovatioun an all Partnerland ze ermëttelen**: Finnland, Frankräich, Island, Italien a Lëtzebuerg.

D'Recherche Fro ass:

- Wat sinn d'Bedürfnisser a Bezuch op d'Ausbildung am Entrepreneuriat an an der Innovatioun?
- Wéi kann d'Formatioun am Entrepreneuriat an an der Innovatioun fir Héichschoulen a Start-ups am Kontext vun der Digitaliséierung entwéckelt ginn?

D'Recherche analyséiert hei d'Perspektiven vun de wichtegsten Bildungsakteuren: den Studenten, den Enseignanten, an der Industrie (an dësem Fall Entreprises an Direktiounen vun PME).

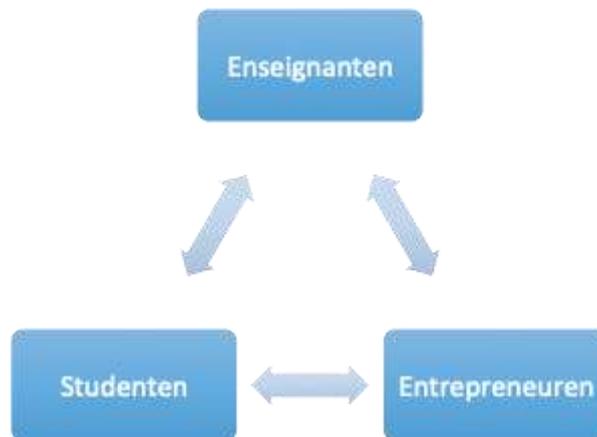
Des Enquête well verstoen, Wéi eng Kompetenzen als déi wichtegst ugesinn ginn a Wéi d'Bildungsanbieter mat de Start-ups an PME zesummeschaffen fir d'Relevanz vun der Educatioun ze garantéieren. Besonnesch gëtt dobäi op d'Perspektiv vun den Studenten gekuckt, hier Perceptioun vun der Formatioun zum Entrepreneuriat am Kader vun hiren Etüden an hier Intentioun Entrepreneuriat als Optioun fir hier Carrière ze gesinn gëtt analyséiert; a verglach mat der Vue vun den Enseignanten.

Doduerch gëtt bei der Analyse festgestallt, ob déi vun den Enseignanten vermëttelt Formatioun am Entrepreneuriat mat de Bedürfnisser vun de Studenten an der Erwaardungen vun der Industrie iwwerteneen stemmen. Ee besonnesche Fokus gëtt op d'Zukunft vun der Educatioun zum Entrepreneuriat aus der Sicht vun deenen dräi Gruppen geluecht.

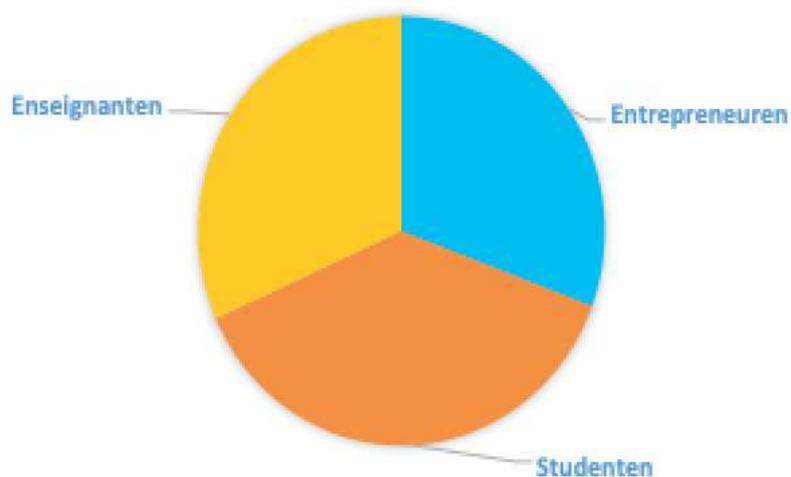
IV. Methodologie

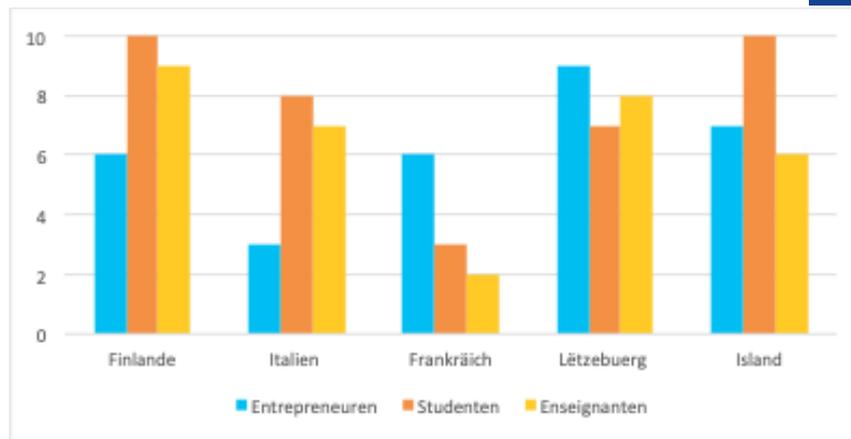
Déi fir des Recherche genotzten Methode baséieren op Fokusgruppeninterviewen an Einzelinterviewen mat den representativen Interessenvertrieder:

- Akademiker, Professoren an Dozenten
- PME an Entreprises
- Studenten v.a. aus Héichschoulen, awer och aus Berufsbildungsariichtungen.



Fir des Fuerschung sinn interviewt ginn: 31 Entrepreneuren, 38 Studenten an 32 Enseignanten am total 101 extern Stakeholderen.





D'Fuerschung fënnt teschtent November 2019 an Juni 2020 statt. D'Fuerschungsmethode mat där geschafft ginn ass, ass eng hallefstrukturiert Fokusgruppemfro. De Responsabelen vun dëser Arbeschtgrupp, d'Universitéit Turku, huet fir all Zilgrupp eng Rei Froen preparéiert (v. Annexe1). Des Froen sollten d'Entretienen guidéierten awer d'Diskussiounen konnte fräi gehale ginn. D'Interviewen sinn v.a. an de Raimlechkeeten vun de Partner gehale ginn. D'Participanten sinn op Basis vun Convenience Sampling ausgewielt ginn, dat sech un der Disponibilitéit an dem Bedarf un ënnerschiddlechen Profiller orientéierte huet: Geschäftsfelder, Alter, Geschlecht, ethnischen Hannergrond asw. De gréissten Deel vun der Fuerschung ass perséinlech duerchgefouert ginn awer opgrond vun COVID-19 war et schwierig, d'Participanten ze errechen, an fir déi restlech Daten ze sammelen, sinn Telefoninterviewen an Online-Emfroen duerchgefouert ginn.

D'Grafiken aus dem Rapport sinn ouni Moosstaf. D'Resultater sinn qualitativ analyséiert ginn an reflektéieren net d'Unzuel vun den Äntwerten, mee villméi Wéi wichteg déi vun all Projetsmanager gesammelt Aussoen sinn. D'qualitativ Fuerschung erméiglecht et eis, d'Erkenntnisser iwwer Verhalen a Motivatioun ze sammelen, fir d'Grënn an d'Motivatioun vum Verhalen ze verstoen.

Entrepreneuriat fënnt een iwwerall. An de läschten 40 Joer sinn akademesch Programmer, akademesch Recherche, Communautéiten vu Studenten, Pedagogik am Enseignement ëmgesat an entwéckelt ginn, an Entrepreneuriat ass fir eis Gesellschaft relevant ginn. Entrepreneuriat ass vill méi Wéi d'Créatioun vun enger Entreprise. Et ass och eng Haltung, déi sech drop konzentréiert Chancen ze sichen, Risiken anzegoen, resilient ze sinn, Ressourcen kreativ ze notzen an eng Iddie ëmzesetzen. Awe mir sollten eis ugesiichts vun der ErWéiderung vum Wirkungsfeld vum Entrepreneuriat iwwerleeë, Wéi d'Zukunft vum Enseignement am Entrepreneuriat kéint ausgesinn? An dëst bréngt eis dozou, och doriwwer nozedenken firwat den Esprit d'Entreprise enseignéiert gëtt? wat ass den Inhalt vum Enseignement zum unternehmereschem Denken an Handele?

Laut der Zäitschrëft Journal of Small Business Management 2018 an hirer Ausgab "Examining the Future of Trajectory of Entrepreneurship" gëtt d'Erzeiung zum Entrepreneuriat op den Universitëiten aus verschiddenen Grënn enseignéiert. Déi eng sichen virun allem no Wertschöpfung, während déi aner d'Dynamik vum Prozesser berécksiichtegen, dee Leidenschaft an Energie, d'Créatioun an

d'Mise en oeuvre vun innovative Iddien erfuerdert¹⁸. Den Inhalt variieert tëscht dräi Variabelen, déi dacks kombinéiert ginn a sech op 1) Basis vun der Entreprise an engem Kontext vun der Gestiou an d'entreprise, 2) unternehmeresche Contenu de base an 3) een Esprit d'entreprenariat konzentréiert. Wat de Mechanismus fir d'Vermëttlung vum Contenu betrëfft, sou ginn des dacks duerch konventionell Konferenzen, salles de classe inversées oder Online-Plattformen vermëttelt. D'Zukunft vum Enseignement zum Entreprenariat hängt awer och vum Léierprozess selwer of, deen vun der Zukunft vun der Bildung am Allgemeinen ofhängeg ass.

Dest bréngt eis bei Zukunft vum Enseignement zum unternehmeresche Denken an Handele. Des kennt an aner Disziplinne disperséiert sinn an gewässermoossen verschwannen oder opmannst net esou offensichtlech sinn Wéi se et haut ass an als getrennt Haapt- an Niewefächer enseignéiert ginn. Den Entrepreneursgeescht kéint räifen an een éischter theoretischen Usaz verfollegen an doduerch sech ee Schrack Wéider vun der Praxis entfernen. D'Entreprenariat kéint dozou bäidroen, d'Bildung esou ze verännern, dat si d'Gesellschaft besser ënnerstëtzt an d'Roll vun den Universitëiten verännert an als een Instrument fir d'Autonomiséierung an d'Transformatioun ugesinn gëtt.

Mat dëser Recherche versiche mir erauszefannen, Wéi modern Instrumenter a Konzepter a Verbindung mat Entreprenariat, een Impakt op d'Créatioun vun neien Entreprises an op d'Verbesserung vun hirer Leeschtung kënnen hun. Während der Recherche hu mir och versicht, déi aktuell Bedürfnisser vun Entrepreneuren zur Steigerung vun hirer Compétitivitéit ze identifizéieren an erauszefannen Wéi d'Zesummenaarbecht mat Bildungsariichtungen duerch d'Enseignanten ee positiven Afloss op d'Ekonomie an op déi zukünfteg Main d'oeuvre hu kann.

¹⁸ Kuratko 2017

V. Resultater

D'Resultater sinn a véier Kategorien ënnerdeelt: 1) Entreprenariat an Innovatioun, 2) Collaboratioun vun Universitëiten mat Entrepreneuren, 3) d'Méiglechkeeten vun enger Carrière 4) Enseignement zum Entreprenariat an der Zukunft.

Entreprenariat an Innovatioun

Wéi schon am viregten Abschnitt erwähnt, verstinn verschidden Zilgruppen Entreprenariat op ënnerschiddlech Aart a Weis. Dest ass an den Diskussiounen an den Fokusgruppen bestätegt ginn, wou et wichteg schénkt, éischt de Begrëff vum Entreprenariat ze definéieren.

Hei ënner (ënnen) drënner fënnt een zwou Definitiounen aus Siicht vun Enseignanten: "D' Fäegkeet, nei Méiglechkeeten ze sichen, deenen een nach nie virdrun begéint ass, den Status quo a Fro ze stellen, eppes Neies ze maachen, ausserhalb vu senger Komfortzon ze sinn an empathesch ze sinn."

Ee Participant huet interdisziplinär Zentren erwähnt, an deenen Entreprenariat bedeit, fäeg ze sinn, nei Verbindungen tëscht Wëssen, Informatiounen a Mënschen hierzestellen.

Een Entrepreneur gëtt als een gesinn, deen léisungsorientéiert ass, deen eng laangfristeg Visioun huet, deen ee Visionär ass an dee d'Fäegkeet huet, sech eppes virzestellen, dat nach net existéiert, eppes dat een villäicht souguer als "verréckt" kéint bezechnen. Den Entrepreneursgeescht ze hunn bezitt sech och op d'Fäegkeet, kreativ ze sinn, a seng Zieler an Dreem trotz begrenzter Ressourcen ze errechen. Et ass eng Kombinatioun aus Visioun an Iwwerzeugung. Et ass eng Veranlagung, een Etat d'Esprit, deen sech aus den Eegenschaften déi am vum Charakter vun enger Persoun, wéi d'Imaginatioun an enger feelender Aversioun géint de Risiko, ergëtt.

Wéi mer feststelle konnten, sinn des Definitiounen allen zwee ganz innovatiounsorientéiert. D'Entrepreneuren an d'Studenten hunn méiglecherweis eng aner Virstellung dovunner, wat Entreprenariat ass. Nom Dictionnaire Merriam-Webster ass een Entrepreneur een, deen eng Entreprise oder eng Organisatioun organiséiert, leet an de Risiko iwwerhëlt. Des Definitioun gesäit och ee Indépendant als Entrepreneur un, och wann d'Entreprise als solches net innovativ ass. Des och vun Dozenten virgeluechten Definitioun kennt dorobber hiweisen, dat den Entreprenariat deen op der Universitëit enseignéiert gëtt éischter innovatiounsorientéiert an domadder e bësse méi limitéiert wier.

Entwécklung vun der Entreprise

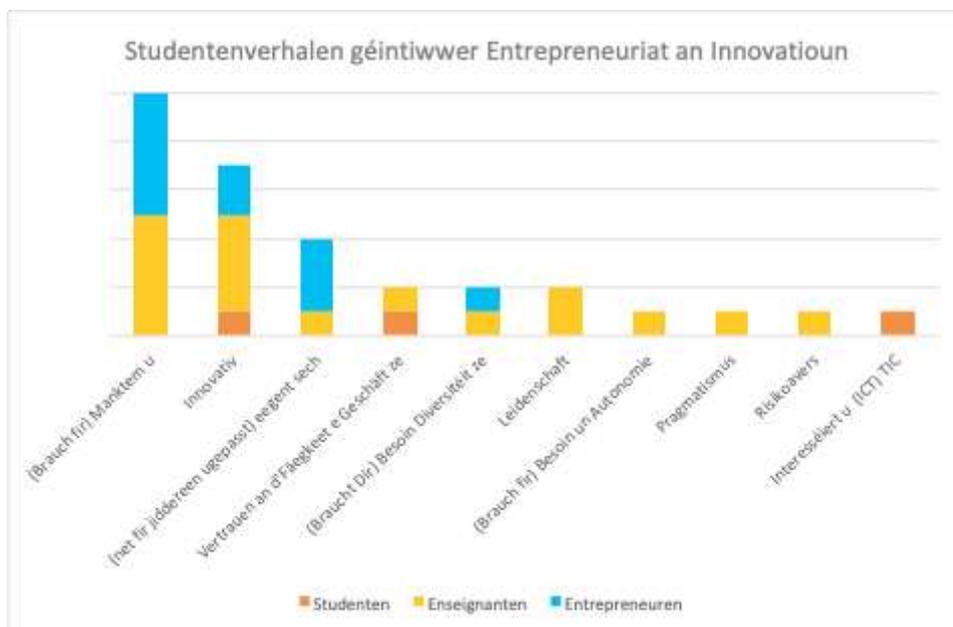
Fir hier Entreprise ze developpéieren, notzen Entrepreneuren momentan folgenden Kanäl, fir hiert d'Wëssen ze erweideren:

- Seminaren, Konferenzen, Atelieren a "Bootcamps"
- sech duerch Liesen informéieren (Presse économique, managériale,...)
- Vernetzen
- Rekrutéieren vu Stagiairen
- Mentor sinn
- aus eegenen Erfahrungen léieren, experimentéieren
- lifelong learning: MOOCs, E-Learning, Cours
- Innovatiounstrend am jeweiligen Wirtschaftssecteur a vun der Konkurrenz verfollegen

Sie notzen eng Mëschung aus perséinlechen an digitalen Quellen, fir sech neien Knowhow unzëeegnen .

Et schéngt dat, fir dat Innovatioun ka stattfannen, een Entrepreneur a seng Mataarbechter iwwer bestëmmten Kompetenzen verfüge sollten awer och d'Unternehmenskultur muss deen Einzelen ënnerstëtzen, fir Innovatioun stattfannen ze loosse..

Fäegkeet vun de Studente ze innovéieren



Des Grafik representéiert D'Integratiounsfäegkeet vun de Studenten no hirer eegener Aschätzung, där vun den Enseignanten an vun den Entrepreneuren. D'Enseignanten an d'Entrepreneuren sinn enger

Meenung dat Studenten méi Eegenmotivatioun brauchen well se permanent missten motivéiert ginn, fir iwwer d' Bewäertung eraus nach motivéiert ze sinn. Si realiséieren dat den Entrepreneurship net fir jiddereen passt awer dat d'Verhalen vum Entrepreneur ka ënnerstëtzt ginn fir spezifesch Kompetenzen déi bei der Créatioun vun enger Entreprise gebraucht ginn ze léieren. Si deelen de selwechten Standpunkt dat Studenten innovativ sinn an dat d'Tatsaach mat Studenten an der méi jonker Generatioun ze schaffen enger Entreprise nei Perspektive ka gin.

D'Enseignanten gesinn hier Studenten als passionéiert, pragmatesch an risikoavers un.

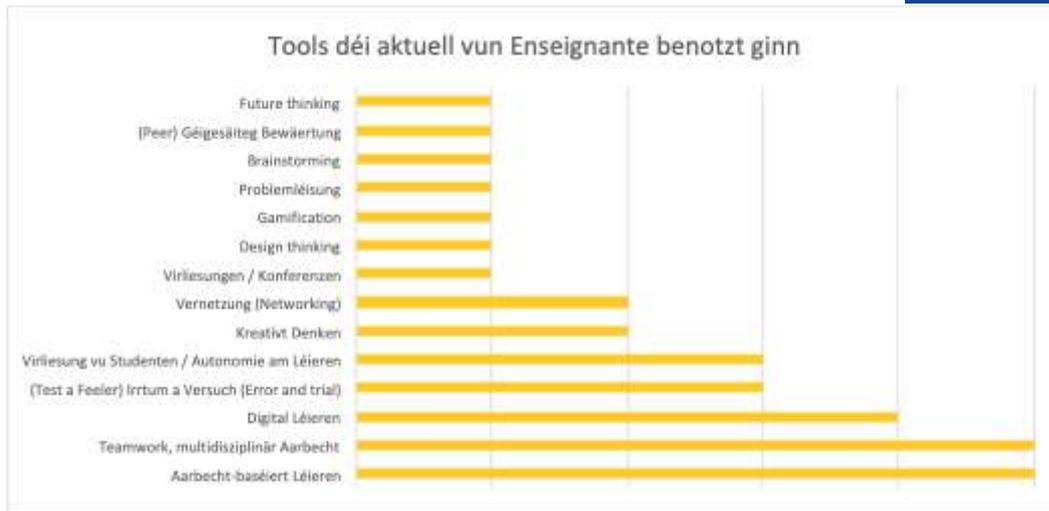
D'Studenten gesinn sech och selwer als innovativ a mat gudde Kompetenzen fir eng Entreprise ze créieren. TIC ginn als liéiert mat der Innovatioun ugesinn.

Den Intraprenariat gëtt och erwäant als eng Alternativ zum Entreprenariat. Den Ënnerscheid tëscht deenen zwee Konzepter ass, dat den Intraprenariat an enger etabliierter Organisatioun stattfënnt woubäi den Entreprenariat duerch eng nei Entreprise (Start-up) déi just zu deem Zweck créiert ginn ass stattfënnt. Een Intrapreneur ass meeschtens als Salarié an enger Societéit gesinn deen an dëser Societéit eng nei Iddie développeiert¹⁹. Fir een erfollegräichen Intrapreneur ze sinn, müssen Studenten spezifesch Kompetenzen hunn déi duerch den Enseignement vum Entreprenariat an der Innovatioun vermëttelt kenne ginn.

Formatioun am Entreprenariat an der Innovatioun ënnerstëtzen

An dësem Abschnitt ginn Outils presentéiert déi d'Enseignantë momentan notze fir den Entrepreneur-an Innovatiounsgeescht an hirer Klass ze ënnerstëtzen (Grafik "Tools currently used by teachers") an d'Methoden déi d'Studenten an d'Enseignanten als Support fir d'Kompetenzen am Entreprenariat consideréieren (Grafik "Approach supporting entrepreneurship education").

¹⁹ D. Ibrahim, M. Washington, L. Law Review; Intrapreneurship. Lexington Vol. 73, Iss. 4, (Fall 2016): 1741-1793.



Déi innovativst Outilen déi genotzt ginn, sinn een Apprentissage am professionellen Milieu, Multidisziplinaritéit an Teamwork, souwéi Digitale Léieren . D´Digitaliséierung vum Léieren an Enseignéieren schéngt gemenghin mat Innovatioun verbonnen ze ginn. Et ass interessant ze observéieren dat Enseignanten och trial and error ënnerstëtzen, wéi et duerch Entrepreneuren recommandéiert gëtt. D´Léieren duerch Feeler als vum Standpunkt vun den Entreprises als ganz wichteg ugesinn ginn. Creative thinking, Design-thinking an Gamification ginn och deels vun den Enseignanten genotzt.

D´Grafik hei ënnen drënner presentéiert eng Lescht mat Praktiken déi, den Studenten an Enseignanten no, am beschten d´Formatioun vum Entrepreneuriat an der Innovatioun ënnerstëtzen. Des zwou Grafiken kennen mateneen verglach ginn fir Similituden ze identifizéieren tëscht den Outilen déi schonn vun den Enseignanten genotzt ginn an de Methoden déi, de Studenten no, nach méi missten genotzt ginn, uze identifizéieren.



D'Methoden déi am meeschten genotzt ginn fir den Entrepreneursgeesch an d'Innovatioun bei de Studenten ze ënnerstëtzen sinn d'Léieren am professionellen Ëmfeld, multidisziplinär a Gruppenaarbecht. D'Studenten wënschen sech dat generell méi Coursen vun Invitéen gehale ginn an dat den Contenu méi kreativ a problemléisungsorientiert ass. Su wënschen sech méi multidisziplinär Vielesungen, déi si als wichteg ugesinn, fir hiert Netzwierk opzebauen an nei Kompetenzen ze kréien, fir dann eng Entreprise kennen ze créeieren. Trotz de Reckmeldunge aus den Entreprises iwver déi feelend Motivatioun vun de Studenten während de Stagen schéngen d'Studenten Stagen als eng Méiglechkeet ze schätzen déi hinnen d'Méiglechkeet gëtt, sech neit Wëssen unzëeegnen an innovativ ze sinn.

Aus der Grafik erkenne mir, dat souwuel Enseignanten wéi och Studenten d'Autonomie beim Léieren wichteg fannen an och dat Studenten selwer de Contenu erschaffen.

Aus de gesammelten Ergebnisser kenne mir beobachten, dat sech d'Studenten iwver innovative Approchen an hier Uwendung an der Geschäftswelt, wéi kreativ Problemléisung, Design-Thinking, Brainstorming, Pitching a Competitioun, bewusst sinn. D'Entwécklung vu kreativem Denken war een Ziel vun den Enseignanten a schéngt schonn genotzt ze ginn. Och d'Gamifizierung ass vun de Schüler dacks zitiiert ginn an entsprécht erëm deenen vun den Enseignanten genotzten Methoden. Et kann een allerdéngs soen, dat sech d'Schülerinnen a Schüler nach méi gamifizeiert an digitaliséiert Contenu wënschen. Och d'Enseignanten sinn fir digitale Fäegkeeten zur Ennerstetzung vun der Innovatioun.

Souwuel Studenten wéi och Enseignanten sinn sech eens, dat d'Zesummenaarbecht mat der Industrie eng pedagogesch Approche déi méi entrepreneurial an innovativ ass ënnerstëtzt.

D'Enseignanten hu widderholl, dat een beim Enseignement zum Entreprenariat och ëmmer beduecht muss ginn., dat Entrepreneur sinn a ginn net fir jiddereen dat richtegt ass. Entrepreneursgeesch kann enseignéiert ginn a Kompetenzen kennen developpéiert ginn awer d'Studenten sollten net an déi Richtung gedrängt ginn. Während den Diskussiounen sinn sech Verrieder aus den Entreprises och eens ginn, dat et fir de Succès vun enger Entreprise ënnerschiddlechen Typen vun Mataarbechter ginn müssen an dat Entreprises och Mataarbechter brauchen déi Expert op hirem Gebitt sinn a manner denken wéi een Entrepreneur fir esou och déi richteg Kompetenzen an der Entreprise ze halen.

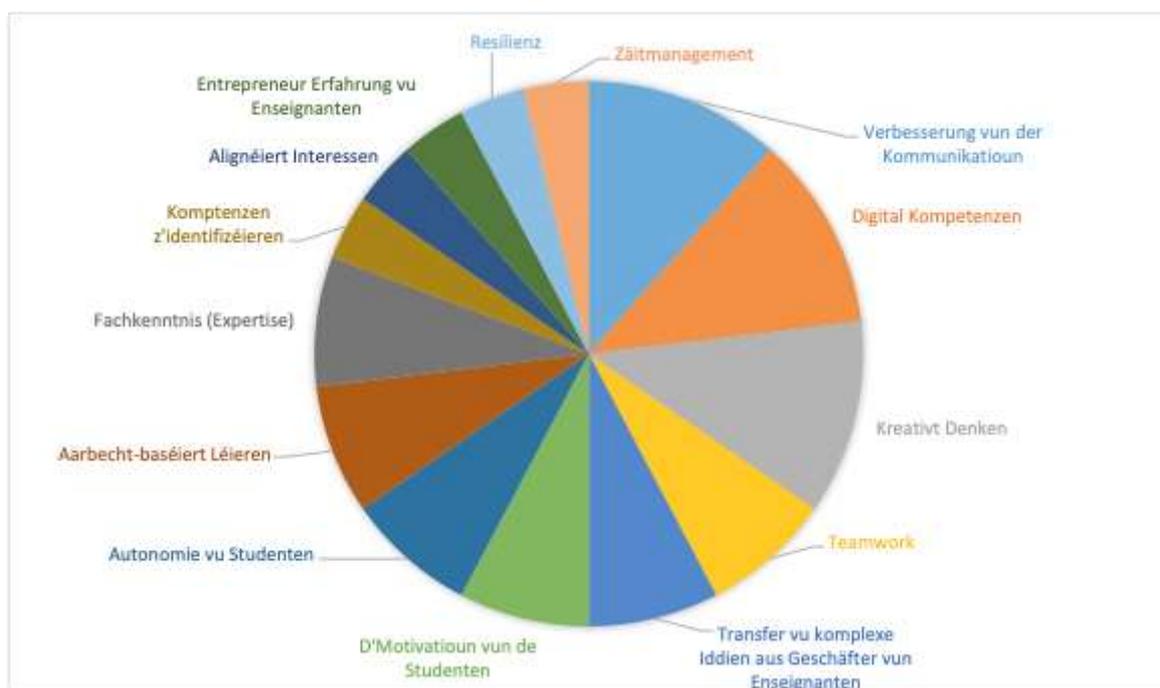
Méi dacks ass ugeschwat ginn dat Studenten während hirem Studium begleet müssen ginn, fir hier zukünfteg Identitéit Professionelle ze erkennen, awer och fir beim Iwwergang vum Studenten - zum professionellen Liewen de richtege Wee anzuschloen. Wann si hiren Studium ofschléissen, gesinn sech d'Studenten net als aarbechtslos, mee éischer als an enger Transitionnsphase. D'Studenten hu erkläert, dat souwuel Bildungsanbieter wéi och d'Entreprises des Transitionnszäit aus engem aneren Bléckwenkel betruechte sollten, fir den fréieren Studenten zousätzlech Méiglechkeeten fir

den Opbau vun hirer Carrière ze bidden, z. B. duerch Networking, spezifesch Kompetenzen, Mentoring asw.

Verschieden Entrepreneuren hunn selwer eréischt viru kuerzem hier Etüden ofgeschlossen erwäant, dat si sech gewünscht hätten während hirem Studium méi praktescht Wëssen fir d'Gestioun vun enger Entreprise ze léieren, z. B. Grundlagen am Droit, Steierrecht. Si waren der Meenung, dat et an der Verantwortung vun den Universitëiten, déi eng Formatioun am Entrepreneuriat ubidden läit, hinnen och des Instrumenter un d'Hand ze ginn.

Kollaboratioun tëscht Universitët an Entreprises

Wéi mer uewendriwwer gesinn hunn sinn Enseignanten an Studenten oppen fir eng Kollaboratioun mat Entreprises well et een Prozess ass deen an der Educatioun relativ aldeeglech ass. D'Entrepreneuren déi interviewt gi sinn waren och interesséiert an hu Wéider Weeër fir eng Zesummenaarbecht virgeschloen.



D'Entrepreneuren wënschen dat d'Kommunikatioun mat de Bildungsrichtungen verbessert gëtt. Si hunn zum Beispill eng kloer Kontaktpersoun déi si direkt errechen kennen erwäant. Si wënschen sech och, dat d'Universitëiten besser iwver hier laangfristeg Strategie kommunizéieren. Een Entrepreneur huet par konter erwäant, dat d'Enseignanten an d'Dozenten liicht ze errechen sinn an dat d'Zesummenaarbecht op eng einfach an formal Aart a Weis kann organiséiert ginn.

Si wiere frou wann d'Studenten besser digital Kompetenzen hätten an fäeg wieren sech innerhalb vun e puer Deeg an eng Ekipp ze intégrieren an kreatiivt Denken an d'Entreprise mat eran ze

bréngen. Si wënschen sech, dat d'Studenten an hirer Aarbecht méi autonom sinn, z. B. während engem Stage, well Start-up keng Ressourcen fir d'Formatioun vun Stagiairen hunn. D'Entrepreneuren wënschen sech weiderhin, dat d'Studenten méi onofhängeg wieren a méi Initiativ ergräifen géifen. Eng Rëtsch Verrieder vun Entreprises hunn och erkläert, dat d'Motivatioun vun de Studenten een Défi ass, well d'Studenten dacks an enger Entreprise wieren fir Credits ze kréien awer keng perséinlech Motivatioun hätten Erfarungen ze sammelen an hier Kompetenzen ze notzen. Dest deckt sech mat de Kommentaren vun de Studenten iwver hier Motivatioun an doriwwer wéi si sech wënschen dat hiren Studium méi wéi eng Zort Projetsaarbecht sollt mateneen verbonnen an integréiert sinn fir besser ze verstoen wéi déi vermëttelt Kompetenzen an der Praxis agesat gi sollen.

D'Entreprises hunn och mei wéi eng Kéier gesot, dat sech d'Léierkultur veränneren sollt fir dat d'Studenten manner Angscht viru Feeler hätten. D'Studenten sollten aus Echec léieren Erfahrung kréien wéi si sech no engem Echec erhuelen kennen fir esou méi resilient ze ginn. Dest steet erëm am Aklang mat de Methoden, déi vun den Enseignanten genotzt ginn fir eng méi experimentell Approche déi sech op Pobeieren a Feeler machen baséiert ze verfolgen.

Par Rapport zu den Stagen hunn e puer Studenten erwäant, dat si net esou effizient waren, wéi si gehofft haten, virun allem well d'Aufgaben déi si kritt hunn net mat hiren Studium iwwerteneen gestemmt hätten an éischter Assistenzaufgaben gewiescht wieren. Op der aneren Säit hunn aner Studenten erkläert, dat et eng gutt Geleeënheet ass während dem Studium éischt Beruffserfahrung ze kréien an eppes iwver Gestiou an Teammanagement, Problemléisung asw. ze léieren.

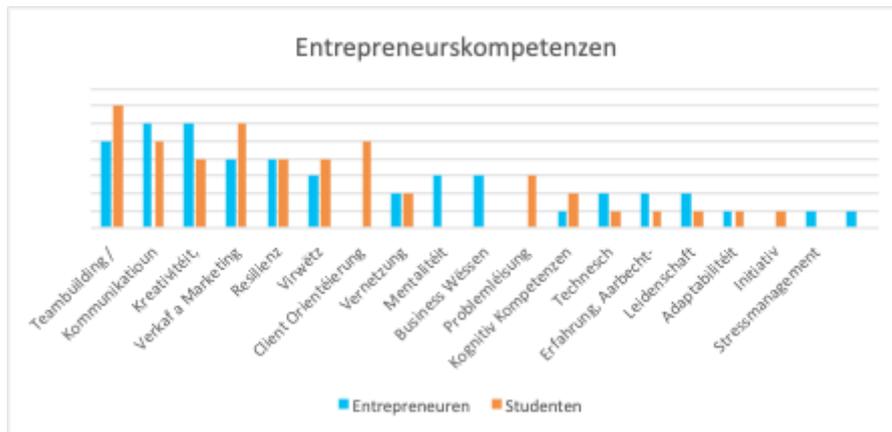
Eng Méiglechkeet fir eng Carrière

Kompetenzen vun engem erfollegräichen Entrepreneur

Während den Diskussiounen sinn Entrepreneuren a Studenten gebieden ginn déi noutwendeg Kompetenzen ze identifizéieren, fir een Entrepreneur ze ginn . An der Grafik hei ënnen drënner gesäit een d'Resultater. Déi Kompetenzen déi méi dacks erwäant gi sinn, sinn duerch een méi héigen Balken gekennzeechent. A blo sinn d'Äntwerten vun den Entrepreneuren an orange sinn d'Studenten.

Souwuel d'Entrepreneuren wéi och d'Studenten bezeechnen Leadership a Gestiou, Kommunikatiounsfäegkeet, d'Fäegkeet iwwert den Tellerrand erauszekucken de Virwëtz, Belaaschtbarkeet souwéi de Verkaf a Marketing als déi wichtegst Kompetenzen. Et ass interessant, dat nëmmen d'Studenten, d'Orientéierung op de Client als eng wichteg Kompetenz identifizéiert hunn, während d'Entrepreneuren dat guer net erwäant hunn.

Bessere technesch Kompetenzen, d'Haltung an d'Leidenschaft sinn vun den Entrepreneuren als ganz wesentlech ugesinn ginn. Si hunn och e puer mol erwäänt dat den Ëmgang mat Stress eng Voraussetzung ass.



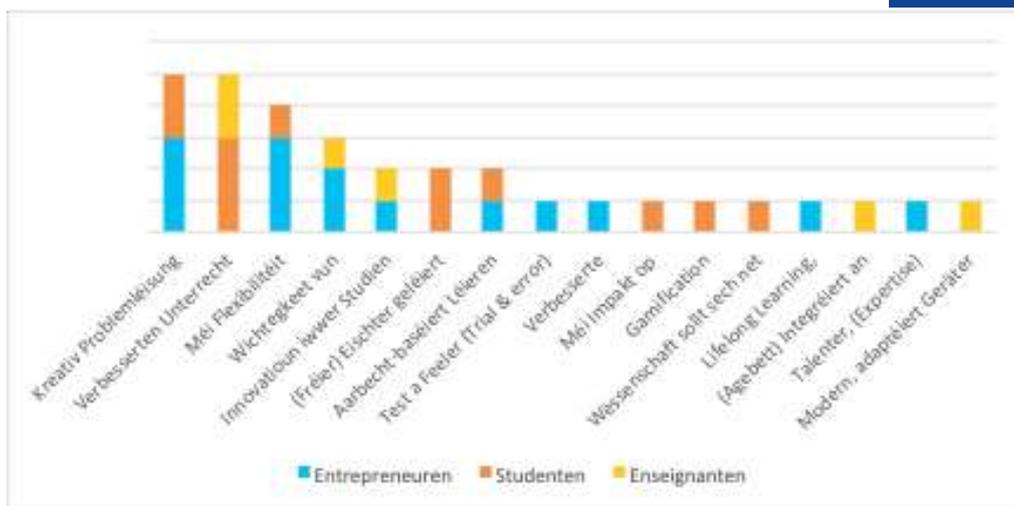
Entrepreneurship Formatioun an der Zukunft

D'Grafik hei ënnen drënner weist d'Perceptioun vum Enseignement zum Entreprenariat an der Innovatioun an den nächste fënnef Joer.

Schüler an Enseignanten sinn sech eens, dat den Enseignement an den nächste Joren verbessert muss ginn. Kreativ Problemlösungen müssen encouragéiert ginn. Den Enseignement muss méi flexibel ginn a ënnerschiddlech Methoden a Parcours d'Apprentissage ubidden.

D'Studenten wënschen sech, dat Entreprenariat méi frei an der Schoul schon enseignéiert gëtt an op allen Bildungsniveauen involvéiert ass. Si mengen och dat dëst ee groussen Afloss op d'Gesellschaft hätt. Si erwaarden och méi gamifizierten Contenu och wann dëst net vun den Enseignanten erwäänt ginn ass.

Den Enseignanten no kéint d'Formatioun vum Entreprenariat an der Innovatioun nei Léiermethoden an den Unterrecht era bréngen déi mat engem verbesserten Unterrecht korreléieren géifen. Et gëtt och erwäänt, dat fir d'Innovatioun ze encouragéieren d'Studenten ee besseren Zougang zu gëeegneten Léiermetteln missten hunn. Des Remark ass och gemaach ginn nodeems d'COVID19-Pandemie ugefaangen hat déi den Bedarf un Online-Inhalter an den Zougang zu digitalen Inhalter verstärkt huet.



VI. Diskussioun

Millennials (gebuer tëscht 1982 an 2004) sinn technesch verséiert an allgemeng begeeschtert Benotzer vun interaktive Medien an Online Spiller²⁰, dofir erwaarden se och méi sophistiquéiert Tools wéi Simulatiounen an der Klass²¹. Gamification an den Héichschoulen ass haaptsächlech op Informatik, Spillerprogrammierung an Ingenieurswiesen fokusséiert awer evoluéiert séier a Richtung Ekonomie, Marketing a Management wéi scho gréisstendeels an der Exekutive Ausbildung an Business Schoulen an an Universitëiten vun Entreprises geschitt. Digital Formen vun der Bildung sou wéi MOOCs sinn och am amgang sech weider ze entwéckelen²², net nëmme wéinst hirer Skaléierbarkeet mee och well si séier op Krisen d'COVID-19 Pandemie reagéieren kenne. Rezent Erkenntnisser weisen datt Gamifikatioun de kollaborativen a soziale Gebrauch verbessert an dëst sinn Kompetenzen déi am Entrepreneurship erfuerderlech sinn²³.

An dësem Kapitel wäerte mir d'Resultater diskutéieren fir iwwer dee Wee ze évalueieren op d'Erkenntnisser mat der Literatur iwwerteneen stemmen a wéi si Bedürfnis no engem gamifizéierte Unterrecht justifizéieren fir Entrepreneurship an Innovatioun ze ënnerstëtzen.

Siicht vun den Entreprises

Kompetenzen

D'Participanten vun Entreprises sinn sech eens gewiescht datt d'Innovatioun ee wesentleche Bausteng vum Entrepreneuriat ass. Differenzéierung a Kreativitéit sinn Virdeeler déi duerch Innovatioun bruecht ginn.

Si deelen och d'Vue doriwwer wéi eng Kompetenze fir en Entrepreneur gebraucht ginn: ofgesi vun der eegener Expertise, müssen d'Entrepreneuren am Management, Cashflow a Comptabilitéit, Finanzen a Fundrasing, Marketing a Verlaf kompetent sinn. All dës Kompetenzen kënnen awer och mat der Zäit entwéckelt ginn.

Déi interviewt Vertrieeder vun Entreprises ënnersträchen d'Pragmatik vum Learning by doing. An dësem Kontext ass d'Fro stellen zentral wéi och de Sënn fir d'Erfahrung. Och ass et wichteg ze léieren Feedback ze benotzen fir sech ze verbesseren zousätzlech zu Kommunikatiounsfäegkeeten.

Si hunn de Besoin un enger Myriad vu Kompetenzen ervirgehuewen, souwuel intern wéi extern, wéi och de richtege Mind-set. Hinnen no géifen d'Studente dovunner profitéieren, souwuel déi elementar "Hard Facts" am Kllassesall ze léieren wéi och déi innovativ Kompetenzen ze kréien. Si géifen och profitéieren dovunner "komplex Problemer aus der realer Welt " kennen ze léieren

²⁰ Hanus & Fox, 2015

²¹ El-Masri, Tarhini, Hassouna, & Elyas, 2015

²² Dicheva et al., 2015

²³ Antonaci et al., 2015

bezunn op kreativ Problemléisungsmethoden. D'Studente sollte generell besser mat praktescher Ausbildung a Problemléisungskompetenzen equipéiert sinn. Den Enseignement ass ëmmer nach net prett fir d'Schüler op déi reell Besoine vun de Recruteurs ze preparéieren.

D'Entrepreneuren schwätzen och iwver déi wuessend Komplexitéit an de Besoin sech upassen ze kennen. En Participant huet kommentéiert "Keen weess wéi d'Zukunft wäert sinn a wéi eng Fäegkeeten a Wësse gebraucht gëtt." Si betounen d'Wichtigkeet vum "Try and error", vum Experimentéieren niewent der Planung an der Mentalitéit keng Angscht ze hunn Feeler ze maachen. E staarke Bedierfnis fir d'Studenten fir Innovatioun an Entrepreneurship ze weiderzebidden gëtt deemno festgestallt. Resilienz an Ausdauer goufen och als grouss Attributer unerkannt a sinn enk verbonne mam Léieren.

Lifelong Learning ass eng Noutwennegkeet a gëtt normalerweis duerch Workshoppen, MOOC an traditionell Coursen gemaach. Wat sech erausschiet ass datt e gudd Mix vun Hard a Soft Skills gebraucht gëtt. Duerch nei Entwécklungen ginn och ëmmer erëm nei Kompetenzen gebraucht. Den Niveau vun der Maturitéit vun enger Entreprise beaflosst och d'Art vu Kompetenzen déi entwéckelt ginn. Alldeeglech Praxis vun Entrepreneursaktivitéiten ass deen anere Schlëssel fir sech zu engem Entrepreneur ze entwéckelen.

Kollaboratioun tëscht Universitéit an Entreprises

Wann et ëm Kooperatioun tëscht Universitéit an Entreprises geet, sichen d'Entreprises no **two-way learning**, z.B a Form vu projetsorientierter Kooperatioun an Dialog tëscht Wëssenschaft a Business. Stagen an den Asaz vun intermittéierenden Mataarbechter si Weeër fir Studenten déi de Potenzial hunn fir agestallt ze ginn, ze testen an se dann u Bord ze huelen. Trotzdeem felt et Studenten, déi no engem Stagen iwverholl ginn un Erfahrung um Terrain a si mussen trainéiert ginn och fir déi richteg Reflexer ze entwéckelen. De Virdeel ass datt si eng nei Perspektiv an nei Iddien an hier theoretesch Expertise mat an d'Entreprise bréngen.

Virun allem mussen d'Studente déi richteg Astellung hunn, fir e potenziellen neie Mataarbechter ze ginn: 1) Upassungsfäegkeet, 2) Fäegkeet fir ze léieren an 3) Wëllen ze wuessen. Normalerweis ass et méi einfach mat Stagiairen eens ze ginn wéi mat akademeschen Institutiounen, well hir Ziler ënnerscheede sech: Déi éischt sichen eng reell Méiglechkeet sech am Aarbechtsëmfeld ze verbesseren während déi aner meeschtens op d'Verbreedung vu Studenten a verschiddene Firme fokusséiert sinn fir hir obligatoresch Stagen.

D'Interviewten hunn eng Lacune entdeckt tëscht den laangfristegen Problemléiungsusätz vun den Universitéiten an den kuerzfristegen Probleemer vun den Entreprises. Dëst Resultat kéint diskutéiert ginn well d'Feelen vun enger laangfristeger Visioun a d'Recherche vu kuerzfristegen Gewënner a Profit verhënnere dat eng Entreprise nohalteg ass.

Si hunn op e Besoin u Mediateuren higewisen - d' "Mavericks" - déi den Gradient vu béide Welten hunn. Interaktioun tëscht der Entreprise an de Léierkontexter sinn éischer schwaach an onstrukturéiert.

Normalerweis representéieren d'Coursen am Marketing an Entrepreneurship vun den Interviewten Entrepreneuren selwer op Universitëten an akademeschen Institutiounen e Wee fir potenziell Mataarbechter tëscht de Studenten z'erreechen. Op dese Wee kann eng fruchtbar Zesummenaarbecht mat akademeschen Institutiounen ugefaangen ginn.

D'Zukunft

D'Firmevertrieder stellen d'Fro ob jidderee muss Entrepreneursgeescht an Innovatioun léieren an ob mir an Zukunft nach "de Standardbeamten" brauchen. Si hunn drop higewisen datt Innovatioun net onbedéngt eng Voraussetzung fir eng erfollegräich entreprise ass, a ka verglach gin mat den Definitioune vun den Enseignanten, déi méi op Innovatioun baséieren.

De Gesellschaftstrend ënnerstëtzt d'Leit dobäi ëmmer méi onofhängeg vun enger permanenter Aarbecht ze ginn. Dofir muss d'Erzéiung dese Besoin verfolge andeems se sech op Entrepreneursgeescht an Innovatioun konsequent konzentréieren an Studenten ënnerstëtzen hir Interessen un dese Sujeten op zwee Weeër ze entwéckelen: andeems se Studenten u voll a laangfristeg Projekte bedeelegen, an duerch d'Integratioun vun Entrepreneuren an der Fakultéit.

Siicht vun den Enseignanten

Entrepreneurship an Innovatioun am Kllassesall

Vill vun den Interviewte Enseignanten gesinn sech éischer als Facilitateuren wéi als Léierpersonal par Rapport zu de Studenten. Si betounen d'Wichtigkeet vun der Schafung vum richtege Léierëmfeld dat d'Léieren ënnerstëtzt. D'Léierpersonal tendéieren éischer dozou iwwer innovativ Approchen ze schwätzen wéi iwwer innovativ Tools.

D'Enseignante bréngen d'Diversitéitsdiskussioun ervir, a weisen drop hin datt d'Studenten verschidden Hannergrënn a Ressourcen hunn an datt Innovatioun oder Entrepreneursgeescht net fir alleguer selwecht definéiert ka sinn. Dëst kéint bedeuten datt een, deen net passend schéngt Entrepreneur ze ginn, eng Schlüsselroll an der Geschäftsentwécklung kéint spillen dank engem Entrepreneursgeescht. Dialog ass gebraucht.

Enseignanten identifizéieren datt aktiv Praxis duerch Rollespill a Fallanalyse als Schlëselfacteur gëllt fir Kreativitéit an Entrepreneursgeescht z'entwéckelen. Studente si méi motivéiert wann d'Enseignanten e richtegt Fallbeispill an hirem Cours benotzen. Dëst gëtt an der aktueller Ëmsetzung vun hire Coursen gesicht, awer als selbstverständlech, als e fundamentalen a méi generaliséierte

Bausteng fir d'Zukunft vun der Erzéiung (an net onbedéngt iwwer Entrepreneurship als Domän) an de 5 bis 10 Joer virausgesinn. Universitëitsenseignante si Fachleit a si sichen no Probleemléisungshaltung a mëlle Fäegkeeten, déi un d'Studente transferéiert ginn. Si sinn d' Accord datt d'Schüler méi Onofhängegkeet ze léieren an Inhalt ze liwweren sollten ënnerstëtzt ginn duerch e méi Versuch a Feeler Approche fir se ze encouragéieren. Och wann et muss berécksiichtegt ginn datt méi Studie méi Onofhängegkeet beim Léiere kéint hir Motivatioun dozou reduzéieren. Studente mussen gestouss a motivéiert ginn, wat dacks de Fall ass wann den Inhalt kontextualiséiert ass.

Selbstvertrauen, Virwëtz a Selbstentwécklung mussen bei landschaftlech Enseignanten aus der Berufsausbildung fuerderen op méi Aarbechtsbaséiert Léieren.

Eegen Kompetenzen entwéckelen

Aus der eegener Komfortzon erauszekommen ass eng Basisfuerderung fir dat Enseignanten selwer hiert Wëssen um neiste Stand ze halen a vun der Praxis validéiert ze ginn. Et erwaard een vun den Enseignanten dat si autonom an hirem Léieren sinn dat si stänneg no **Méiglechkeete sichen** a Kontakt mat de Betriber ze kommen.

Sech verschidden Inspiratiounsquellen aussetzen (Konferenzen, Netzwierker, Eventer, kulturellt an artistescht Material, an natierlech wëssenschaftlech Literatur) ass wichteg fir d'Enseignanten an d'Studenten, well de Kontext kann d'Astellung vis-à-vis vun Innovatioun beaflossen.

Eng allgemeng Iwwerleeung soll mat der Perceptioun vun de Bedierfnesser verbonne sinn, fir datt d'Erzéier d'Léierkontexter innovéieren am Aklang mat reelle Bedierfnesser fir zukünfteg Aarbechtsplazen an Entrepreneurship.

E puer vun den Interviewten hunn och erwäant hir Léiermethoden weiderzëntwéckelen andeems se mat aneren Enseignanten a Fuerscher kollaboréieren fir Zil vun de Coursen, Inhalt, Aufgaben, etc. ze definéieren.

D'Zukunft

D'Interviewten hunn drop higewisen datt et keng Sécherheet ass wéi d'Zukunft wäert sinn an datt et kee Rezept gëtt fir ze léieren. Dofir zielen se op "d'Schalter vun de Studenten unzeschalten" - wouduerch se ufänken ze froen a selwer Äntwerten ze fannen.

Wat d'Entwécklung vun hirer Léier ugeet, erkennen d'Léierpersonal datt se méi mat Entrepreneurse solle kollaboréieren fir d'Geschäftsliewen aus hirer Perspektiv besser ze verstoen.

Siicht vun de Studenten

D'Perceptioun vun sengem perséinlechen Niveau vum Entrepreneursgeescht a vun der Haltung vis-à-vis vun der Innovatioun variéieren en fonctioun vun den Erfahrungen an eventuell och vum Niveau vun der Maturitéit bei sou jonke Leit. Béd Aspekter si staark beaflosst vum Niveau vum Selbstvertrauen.

Léieren ze schaffen

D'Interviewte Studente hunn an der Diskussioun vill op Ufuerderungen an der Aarbechtswelt insistéiert. Si sinn der Meenung dat et eng Lacune gëtt tëscht de Kompetenzen déi am Berufsliewen gefrot ginn an de Kompetenzen a Wëssen déi an der Erziung vermëttelt ginn, an hunn drop higewisen datt d'Studien an d'Aarbechtswelt getrennt sinn. Si sinn gären bereet des Situatioun ze léisen an hunn vill praktesch Iddien a Propose gemaach. Dës Studente schéngen eng gutt Iwwersiicht iwwer déi verfügbar innovativ Outilen ze hunn.

D'Schüler hunn drop higewisen datt se eng grouss Diversitéit u Fäegkeeten entwéckele mussen, ugefaange mat de Basisfäegkeeten. Fir se ze kréien, kënnen si vill verschidde Quelle sichen: Benevolat, Aarbechtsplazen, Netzwierker ... Si wiere frou méi Projektorientéierung, Problemsolving, Behandelen vu praktesche realen Fallbeispiller, interdisziplinäre Coursen an ähnlech an hirer Ausbildung ze gesinn. Si hunn och fir Kooperatioun tëscht de Fakultéiten operuff.

No de Studenten ass eng grouss a variéiert Palette u Kompetenzen noutwendeg fir e gudden Entrepreneur ze ginn. Eng gutt Mëschung vu Gestions (Delegatioun, Strategie, Qualitéit) a kommerziellen Kompetenzen mussen onbedéngt ergänzt ginn mat enger zolitter Basis vu Soft Skills (Zesummenaarbecht, Vernetzung, Kommunikatioun, Teambuilding, Verhandlung, Leadership) an Attitüden (streng sinn) ass gebraucht. Awer besonnesch zwee Mind-Sets kënnen den Ënnerscheid wierklech maachen: Virwëtz a Service. Déi éischt ass de Chauffeur vun Innovatioun a fir déi richteg Leit unzezéien fir matzeschaffen. Déi zweet ass de Chauffer vum kommerziellen Erfolleg.

Vernetzung an all perséinlech Aarbechtserfaarungen hu gréisstendeels dozou bäigedroen fir déi néideg Kompetenzen z'entwéckelen fir Entrepreneuren ze ginn. Am glécklechste Fall huet och d'Schoul déi gutt Astellung fir dës ginn.

Sérieux Spiller a Projeetbaséiert Léiere si sécher nützlich Tools, déi kënnen implementéiert ginn, fir virzegoen, awer wat géif de reellen Ënnerscheid maachen fir eegene Entrepreneursgeescht ze entwéckelen, ass en direkten Kontakt mat Entrepreneuren. An deem Fall representéiere Workshops, Konferenzen, awer virun allem Mentoring an Tutorat de richteg Moteur fir ee Changement.

Et gëtt normalerweis eng gutt Perceptioun iwwer den Niveau vun Innovatioun an Entrepreneursgeescht vun der pedagogescher Institutioun, awer dëst ka variéieren, besonnesch wat d'Innovativitéit ugeet, no de verschiddene Fäll.

Professionelle Orientéierung

Studente feelen eng kloer Visioun iwwer hir Karriär an hunn e staarkt Bedierfnes aus prakteschen aarbechtsbaséierte Léierkontexter ze léieren.

D'Studente betounen d'Wichtigkeet vun der Erfahrung an ee gutt entwéckelte Réseau ze hunn ier se eng Entreprise starten. Si hunn och drop higewisen wéi wichtig et ass seng eegen Valeur als Professionellen ze verstoen.

Et ass dann och evident datt Auto-Entrepreneurship net als Optioun ugesi gött haaptsächlech wéinst dem feelende Selbstvertrauen a well et net am formellen Bildungskontext stimuléiert gött. En Entrepreneur kuerzfristeg ginn as net onbedéngt e Must fir déi interviewt Studenten. Wéi och ëmmer, dëst hänkt och vun der Aart vu Léierplang of, déi se follegen: en UX Designer ass sécher gär fir eng Freelance Karriär ze starten anstatt Studenten a Geschäfts- a Kommunikationsstudien déi léiwer Erfahrung sammeln ier se décidéieren onofhängege Beroder ze ginn oder souguer Entrepreneuren. Op jiddwer Fall ginn d'Erausforderungen, déi am Zesammenhang sinn mat engem unternehmerechen Asaz, berécksiichtegt a bewäert, abegraff d' Balance tëscht Aarbecht a Privatliewen. Wann e Student mat der Sich no enger Aarbecht oder no engem Stage konfrontéiert ass, gött et allgemeng eng gutt Haltung fir d'Dier op ze halen net nëmmen an d'Kärkompetenze vum professionelle Beräich an d'Déift ze kommen awer och fir nei Fäegkeeten ze léieren. Wéi och ëmmer, d'Beschäftegung sollt net ze wäit vun de Kärinteressen ewech sinn.

Allgemeng wëllen d'Studenten dat d'Ausbildungsinstitutionen hinnen hëllef fir d'Wëssenlücken opzefüllen déi se gleewen ze hunn, besonnesch a Relatioun mat hire spezifesch Léierpläng déi hirer Meenung no net all d'Kompetenzen ofdecken déi se identifizéiert hunn. Si wëilten z.b. Hëllef dobäi sech selwer besser ze verstoen, hier eege Stärkten a Schwächen ze kennen, an och ze léiere wéi ee gutt mat anere Mënschen interagéiert, alles also fundamental Kompetenzen déi een Entrepreneur muss hunn. Eng Ännerung vun der Kultur gött och gefrot, besonnesch wat d'Perceptioun vum Versoen als Léiererfahrung anstatt als Echec ze gesinn. Schlussendlech ass eng méi enk Relatioun mam Marché an der realer Geschäftswelt wichtig fir déi richteg Perceptioun vun den eegene Kompetenzen ze kréien.

Den Haaptmoteur ass dobäi de Wonsch méi ze léieren a gläichzäiteg besser virbereet ze sinn a besser Chancen op eng professionell Karriär ze hunn. Wësse vum Secteur gouf meeschtens duerch dat edukatiivt Ëmfeld entwéckelt an duerno duerch perséinlech Erfahrung verstärkt.

Zukunft vun der Entrepreneurship Formatoun

D'Studenten hunn eng positiv Perceptioun vun der Zukunft vun der Ausbildung zum Entrepreneuriat an der Innovatioun. Dëst wier e wichtige Hiewel fir d'Entstoe vun neie Start-ups a wier besonnesch effektiv a Beräicher mat héijer technologescher Auswierkung wéi Ingenieurswiesen. Trotzdeem, wënschen si sech dat dës Themen am Enseignement an enger méi fréierer Phase agefouert ginn,

wéi et och an anere Länner geschitt, wéi z. B. a Schweden (mam Gebrauch vum Rollespill an de Spill- a Primärschoulen).

Et gëtt sécherlech net eng eenzeg Léisung déi generell passt fir eng besser Ausbildung am Entreprenariat an der Innovatioun. Eng Mëschung vun neie Léierplattformen, projetbaséiert Léieren zesumme mat enger méi grousser Bedeelegung vun erfuerenen Entrepreneuren an der Dispositioun vu besseren Tools fir kéinten zu dësem Zil bäizedroen.

VII. Conclusiounen

Duerch dëse Bericht hu mir Kompetenzen, Lacune a Wënsch fir d'Zukunft vun den dräi Haaptakteuren identifizéiert, déi d'Education ënnerstëtzen: d'Studenten, d'Léierpersonal an d'Entrepreneuren / Firmevertrieder.

Aus den Erkenntnisser kënnen mir ganz einfach schléissen datt et eng kleng Lacune gëtt tëscht de Fäegkeeten déi um Aarbechtsmaart gebraucht ginn an dem Know-How deen d'Studente kréien. Mir kënnen empfeelen datt Institutiounen aus dem Enseignement méi Ressourcen zur Verfügung setzen fir d'Léierpersonal ze encouragéieren méi mam Entrepreneuriat ze kollaboréieren awer datt se och Servicer fir d'Léierpersonal ubidden fir hir Léierkompetenzen zesummen z'entwéckelen. Hei ee Schwéierpunkt op Problemléisung a op Fallbeispiller ze setzen schéngt di richteg Optioun ze sinn. Traditionell Virliesung kombinéiert mat digitalem Enseignement, erwidert mat Gamifikatiounstechniken, géifen et de Studenten erlaben bestëmmte Kompetenzen ze entwéckelen, déi gebraucht ginn, wa se hir beruflech Karriär ufänken, awer och en Entrepreneursgescht ënnerstëtzen. Entrepreneurship Ausbildung an Entrepreneurscoursen solle berücksichtegen hir Offer op Entrepreneursfäegkeeten a Mind-Set ausbauen a manner op Handwierksgeschier a Methode fokusséieren fir e Geschäft ze grënnen, well Entrepreneursgescht net fir jiddereen ass, awer jidderee misst e gewëssen Entrepreneursgescht hunn.

Am aktuellen Kontext, zënter der COVID19 Pandemie vum Fréijoer 2020, ass et nach méi richteg dat d'Online-Ausbildung wichteg nei Léierméiglechkeeten bitt, op déi déi nei Generatioun waart. Aféierung vu gamifizierten Inhalt géif d'Bedelegung an d'Konkurrenz encouragéieren déi als ee Motivationsfaktor vun de Studente genannt gouf fir d'entrepreneurell Astellung ze léieren an z'ënnerstëtzen.

Niewent der Fuerschung hu mir d'Wichtigkeet vu Kreativitéit a kreativer Problemléisung identifizéiert, déi Entrepreneuriat an Innovatioun ënnerstëtzen. Zousätzlech hunn d'Schüler d'Wichtigkeet ënnerstrach dat de Clienten muss am Mëttelpunkt stinn, hir Besoinen ze verstoen a méi konsumentorientéiert ze sinn. Dës Resultater Wësen och d'Relevanz fir kreativ Problemléisung a mënschlech zentréiert Designmethodologien wéi Designdenken an Entrepreneurship ze integréieren fir d'Innovationspotential vu Start-Ups a Firmen am Allgemengen ze stäerken.

Dofir sinn déi nächst logesch Schrëtt vum CDTMOOC Projet d'Lacunen unzegoen an eng méi innovativ Approche fir Enseignanten a Studenten ze entwéckelen, wéi och fir Entrepreneurien, fir déi aktuell Bedierfnesser vum Geschäftssektor ze errechen an d'Innovatioun am Allgemengen ze verbessern. CDTMOOC Projet konzentréiert sech op gamifiziert MOOCen als alternativ Wee fir dëst Zil z'erreechen.

VIII. Annexen

Annex 1 – Interview Guiden

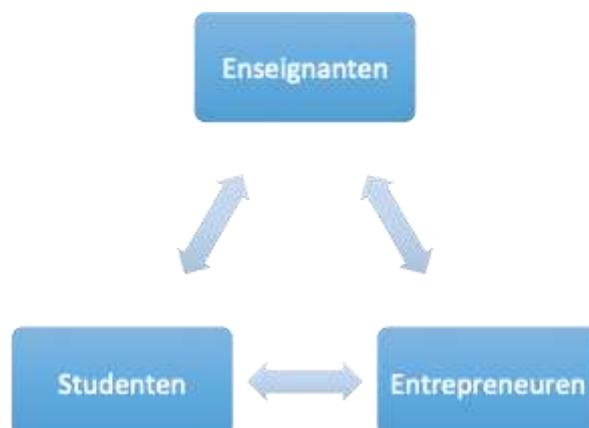
Focus Group Interview Guide

Introducing CDTMOOC project and the research

This framework for focus group interview is aiming at **identify the real needs and challenges in terms of education and learning in entrepreneurship and innovation** of each partner country: Finland, Italy, Luxembourg, France and Iceland.

The interviews are focusing on the representatives of the triangle:

- Academics, professors and teachers
- SMEs and entrepreneurs
- and students mainly from higher education institutions but also from Vocational Education and Training Institutions.



From this analysis is emerging the needs and suggestions about the **ways to implement in a more effective way the entrepreneurial education**.

Research method: interviews of teachers, companies and students

The evidence occurred, results and feedback with special evidence to the emerging challenges and needs in each partner country from the interviews will be reported by each partner in English. General challenges across the partner countries will be identified and possible ways to implement an effective transformation in the entrepreneurial educational system will emerge. These results will be available under an interactive report in English, Finnish, Italian, French, Icelandic and Luxembourgish and consultable online on ISSUU platform.

Answers are anonymous

Interview frame to companies

Based on your experience, what are the skills (soft and hard skills) required to become a successful entrepreneur?

How do you acquire the further skills you need to develop your business?

How does innovation play a role in the development of your business?

When working with students and/or collaborating with education institutions, what skills are you looking for?

What should educators do to make students more entrepreneurial and innovative by the time they graduate?

Which challenges or weaknesses can you identify as a professional in terms of collaboration with education providers / students?

Which threats / demand for change can you identify that have emerged in relation to your cooperation with education providers / students within the last 5 years?

What kind of educational support would you need to ensure your business remains competitive and successful?

In your opinion, what role will entrepreneurship and innovation play in education in the next 5 years? 10 years?

Interview frame to teachers

How would your students describe your innovativeness and entrepreneurialism in your teaching?

How do you transfer an innovative and entrepreneurial mind-set to your students?

What are the newest teaching tools/methods that you use to stay innovative? Can you give an example?

How do you receive feedback on the content and methodology of your teaching?

Within the next 5 years, what will you need to stay innovative and become more entrepreneurial in your teaching?

How entrepreneurial and innovative are your students? How interested are they in these topics?

What are the main challenges you can identify when preparing the students to be entrepreneurial and innovative?

In your opinion, what role will entrepreneurship and innovation play in education in the next 5 years? 10 years?

In an optimal world, what do you think could ensure the best entrepreneurial-oriented and innovative education?

Interview frame to students

As a student, what skills do you see are necessary to become a successful entrepreneur?

What skills do you wish that your degree would provide you with to become entrepreneurial and innovative?

What tools/methods (e.g. company cases, flipped classrooms, interactive presentations, etc.) do you wish your teachers would use to become entrepreneurial and innovative?

Would you say that the institution where you are studying is entrepreneurial and innovative? How could it improve?

Do you consider yourself entrepreneurial and innovative? Why?

From where have you gained your knowledge of the industry you are trained for?

Are you considering becoming an entrepreneur after graduation, and if yes, can you already identify skills and tools you would need to succeed?

When applying for a job/internship, what do you look for? What type of skills do you want to develop?

In your opinion, what role will entrepreneurship and innovation play in education in the next 5 years?

In an optimal world, what do you think could ensure the best entrepreneurial-oriented and innovative education?

Annex 2 – Befindunge vun der Universit it Turku, Finland

Outcomes from the group discussions with companies, UTU

Validity of the results

The companies interviewed were selected based on previous collaboration and recommendations from the SparkUp co-working space. Not all companies have been previously collaborating with the University which gave a wider perspective to the topic. Also interviewees did not all know each other. Companies are operating in different field (consulting agency, quality of air measurement, online education provider, and augmented reality services).

To introduce the focus group, a brief presentation of the project and the method used for the data collection were presented using PowerPoint.

General observations on discussion with companies

The interviewed company representatives emphasize the **pragmatics of learning while doing**. In this context the asking of questions and trying is central according to the interviewees. Also learning to use feedback to improve is seen as an important skill, in addition to communication skills.

They highlight the need for **myriad of skills**, both **internal and external**, as well as the right kind of a **mind-set**. According to them students would benefit learning both the **basic “hard skills”** in the classroom, but also the **innovative skills**; and they would gain from exposition to the **“real world complex problems”** and creative problem solving related.

The company representatives bring to the fore the **growing complexity** and the need to adapt to change. The interviewee commented “Nobody knows how the future will be and what kind of skills and knowledge will be needed.” With respect to they stress the importance of **trial and error, experimenting** in addition to planning and the mentality of **not being afraid of mistakes**. In the context of education this could mean e.g. “find out” type of tasks and creative problem solving challenges, the company representatives suggest.

When it comes to the university-business collaboration the companies seek for **two-way learning**, e.g. in form of **project-oriented co-operation** and **dialogue** between science and business. The interviewees detected a gap between the universities’ long-term problem solving and businesses’ short-term problem solving. They pointed out a need of mediators – the “Mavericks” – who have the gradient of both worlds.

The company representatives posed the question whether everybody needs to be educated on entrepreneurship and innovation and whether we still need “the basic employee” in the future. They also pointed out that innovation is not necessarily a prerequisite for a successful enterprise.

BUSINESS DEVELOPMENT

Skills for entrepreneurs – existing and needed

- Internal skills
 - mind-set (“great ideas are not enough”)
 - stress handling
 - knowing yourself
 - ability to take different perspectives
 - micro skills
 - creativity
 - communication skills
- External skills
 - basic business knowledge
 - sales and marketing skills
 - multi skills
- Entrepreneurial mind-set
 - stress on pragmatism
 - interested on everything
 - handle failure
 - persistence
 - ability to take calculated risks
- Know-how on creating and communicating the business value
 - how to differentiate?
- Ability to deal with complexity, both in regard to the growing complexity in society, and; entrepreneurship as dealing with a messy mix of things
- Long-term perspective on doing
 - continuous learning and not giving up
 - adapting to the change
- Mental capability
 - knowing yourself
 - vulnerability
 - ability to take criticism
 - dealing with conflict
 - “you are never ready”
- Good motivation, what are own goals, how to reach them, spilt them in smaller steps
- willingness to learn (mentors, courses at university, online courses, entrepreneurship community)

Additional comments and suggestions:

“Doesn't necessarily need to be innovative, you can be successful without innovation as well.”

“Have time to reflect: collect data, make internal diaries, chats. Working individually and creating partner networks as well.”

Innovation in the business development

- "Do, notice, reflect, action"
- Looking for interesting things everywhere: seminars, reading, talk with people
- innovation to come up with new solutions

UNIVERSITY-BUSINESS COLLABORATION

Collaboration with education providers and students

- More communication between universities and businesses
- Lack of visibility => attending events, entrepreneurs are not aware of possible collaboration
- "Lunch with the professor" to learn about the long-term thinking
- "We need "Maverick" teachers who are able to transfer very complex ideas and have gradient between both education and business worlds."
- Teachers should be exposed to entrepreneurship
- There should be learning both ways
 - understanding learning
 - understanding entrepreneurship
- The student needed more skills to work independently as start-up did not have resources to guide the intern
- Skill set of the students is not enough (for programming)

Students' entrepreneurialism and innovativeness

- students should be pushed to jump
- team work is important to find like-minded people
- going through very innovative cases is inspiring
- more hands on entrepreneurship skills such as tax plan, what has to be considered to protect your company, agreements, etc.
- a more design thinking approach is needed to discuss with end users, the problem has to be validated first
- Should be self-motivation beyond credits
- You shouldn't be afraid of saying something wrong
- "some **basic skills** need to be taught in the classroom, but **practical skills** should be taught right after the hard skills have been developed"
- Attention on diversity: you can be innovative without appearing innovative (e.g. introverted students)
- "University should be a place to **try things differently**, not to go the same wrong way"

Additional comments and suggestions:

"There are 3 types of students." The ones who:

- > just cruise through the studies ("basic" employees)
- > top students (future managers)
- > out-of-the-box thinkers (innovators)

“Not everyone needs to be the innovator. There’s a threat that the innovator doesn’t work for you a long time, when he discovers something new.”

Suggested tools or approaches for helping students:

Name of tool/method/approach

- Capstone approach
- Learning to learn –strategies
- Trying things in different ways
- both the core understanding and creativeness
- Conflict management skills
- Confidence boost –event
- Workshop "How I know how to grab the knowledge while I go"
- Fertilizing a mind-set”, instead of teaching
- “Trial and error”
- Project orientation in teaching
- Solving real world complex problems
- Science parks
- Exposing of teachers to businesses/entrepreneurship
- Learning both ways (understanding learning and understanding business)
- Facilitating entrepreneurship, e.g. by linking students with investors
- Teacher as facilitator
- Creative problem solving
- “Find out" type of tasks
- Creating experiential mind-sets, not only planning mind-sets.
- Finding by yourself

Challenges encountered

- Universities are very good at **long-term problem-solving**,
Businesses are very good at **short-term problem-solving**
How to deal with this misfit?
- Dealing with students different than dealing with employees
- Teachers not exposed to business or entrepreneurship
- Level of **complexity grows** -> you need to be able to **experiment**
- The culture of being afraid to say something wrong
- Pressure for students to graduate faster limit their possibility to take part in such company projects

Additional comments and suggestions:

“Creativeness is not enough, you also need core understanding.”

Threats and demand for change

- Culture of “being afraid of mistakes” has to be changed

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

Educational support needed for business development

- The society coming along -> e.g. basic income
- understanding the value in the future
- Universities are very good at long term-thinking
“How could I be linked to that thinking?”
- "Lunch with the professor" to learn about the long-term thinking
- Communication between universities and businesses
- Networking skills, team skills
- Help with hands on
- To be pushed to step out of own comfort zone
- How to run pilots, how to prototype = system to get feedback, how to talk with users
- Branding skills

Role of entrepreneurship and innovation in education in the next 5 years?

- “Innovation will be very important, more and more people need to be innovative.”
- “Innovation is not a must”
- “The most important is to find the right person to the job”
- Knowing oneself is important to find the core of what you’re doing
“you need to be challenged for that”
- The university should provide creative problem-solving
- “You cannot just plan, experiment!” -> Learning two mind-sets.
- More communication between universities and businesses
- “We need "Maverick" teachers who are able to transfer very complex ideas and have gradient between both education and business worlds.”
- Courses will be put on value chain and will be integrated and offered as a package
- Students might do a double degree and entrepreneurship will be integrated to economics
- Need for more freedom and flexibility to do what people want
- Will to learn more all the time

Outcomes from the group discussions with teachers

Validity of the results

The teachers interviewed are all from the University of Turku, but from different faculties: IT, International Business, Language, Dentistry and Entrepreneurship unit. Not all teachers knew each other before the discussion. Not all teachers are familiar with entrepreneurship education or entrepreneurial teaching.

To introduce the focus group, a brief presentation of the project and the method used for the data collection were presented using PowerPoint.

General observations on discussion with teachers

Many of the teachers interviewed see themselves rather *facilitating* than teaching the students. They stress the importance of creating the right kind of *learning environment* that supports the learning.

The interviewees pointed out there is no certainty about how the future will be like and that there is no recipe to teach. Hence, they aim at “*turning the students’ switches on*” – making them start *questioning* and *finding answers by themselves*.

The teachers tend **rather talk about approaches than innovative tools**.

The teachers bring in the diversity discussion, pointing out that the learners have different backgrounds and resources and that innovation or entrepreneurial behaviour does not look the same for all. This could mean that someone who does not *seem* suitable might play a key role in success. Dialogue is needed.

ENTREPRENEURSHIP AND INNOVATION IN TEACHING

Innovation in teaching

- Facilitating of learning
- Supportive learning environment
- students finding questions and answers by themselves
- Ensuring teamwork
- Teaching strategic thinking which involves creative thinking
- Future thinking
- “No teaching” -> Flipped classroom
- Do-it-yourself thinking
- "Why" and "how" questions
- Real life case
- Group challenge
- Projects (problem-based learning)
- Settings or approaches rather than tools
- Error and trial
- Inquiry-based learning

- Lectures in video format
- Choice-game / gamification
- Students as producers of lectures
- Action research as tool for the teacher

Additional comments and suggestions:

A teacher pointed out that there are 3 elements of learning:

1. content (theoretical understanding)
2. innovativeness (action to apply their knowledge)
3. reflection (find ways to creating value for organisations and themselves)

Feedback

- Revisiting and assessing frequently
- Questionnaires with open-ended questions
note: on work-intensive courses students report the course affecting their lives in general.
- Reflections by the students
- “Joint agreement” with expert learners
- Feedback session to get two-way feedback
- Writing a note for next year’s students

ENTREPRENEURSHIP AND INNOVATION AMONG STUDENTS

Students’ entrepreneurialism and innovativeness

- This depends on the learning environment
- Depends also on individual and on the group they are in
- Entrepreneurial attitude not necessarily related to money-making
- Valuing diversity:
 - students are used to different learning environments
 - there are people with different resources
 - someone who doesn’t seem suitable may play the key role regarding innovation (talent and creativity in the substance)
 - dialogue is important

Challenges encountered

- “Not everyone is suitable to become an entrepreneur, you need employees too.”
- Managing diversity
- Entrepreneurial behaviour doesn’t look the same for all
- teaching introverted students to give presentations and talk with people
- Role of self-regulation: taking responsibility is easier for others
- Different backgrounds, different background knowledge

- “How to understand people/customers?”

Additional comments and suggestions:

“The attitude has been created already on earlier age.”

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

Role of entrepreneurship and innovation in education in the next 5 years?

- Responding to the growing complexity -> no certainty about the right thing
- Different from context to context and discipline to discipline
- Different perspective needed, not just the hero stories

Additional comments and suggestions:

“Do we also need people who are out of this innovation thinking?” (“basic employees”)
“What to answer to a 16-year old?” -> how to have a good life? Perhaps: “Try” and
“Find yourself”

How to ensure the best entrepreneurial-oriented and innovative education

- “Our role is to bring critical creative problem-solvers that can work in teams.”
- Creating innovative ways to see things.
- "What will be your desired future?" "We will help you finding out".
- Helping students to transition to the workplace.
- Figuring out their future identity.

Additional comments and suggestions:

“No recipe of steps to follow.”

Outcomes from the group discussions with students, UTU

Validity of the results

The results are based on focus group discussion and survey, representing half and half of the answers. The same questions were asked in the survey as in the group discussion.

The participants to the group discussion were approached and selected by the student entrepreneurial community Boost Turku. This implies that all participants were somewhat familiar with entrepreneurship. The participants came from the University of Turku but also Åbo Akademi (Swedish speaking university) and the Turku University of Applied Sciences. The students had different backgrounds. Some came from the business school, others from IT department while some had a sociologist background.

The students who took part in the survey have been enrolled in entrepreneurship courses for non-business students.

To introduce the focus group, a brief presentation of the project and the method used for the data collection were presented using PowerPoint.

General observations on discussion with students:

The students interviewed focused much on the **working life requirements** in the discussion. They are prone to think that there is a gap between the required working life skills and the skills and knowledge acquired at the university, and pointed out that the studies and the working life are very much separated in Finland. They were very keen on solving this mismatch and gave **lot of practical ideas for tools**. These students seemed to have a good idea about the available innovative tools. Some of them had joined innovative challenges and activities within or outside the university.

The students pointed out that they need to **develop a vast variety of skills**, starting from the basic skills. In obtaining skills they may seek many different sources: volunteering, work placements, networks... They would be delighted to see more **project-orientation, problem-solving**, exposure to practical **real life problems, interdisciplinary** courses and such in their education. They also call for **co-operation between the faculties**.

The students stress the importance of **experience** and getting to know people before starting an enterprise. -> **Time for maturing** is important. They also pointed out how important it is to **understand your own value** as a professional.

ENTREPRENEURSHIP AND INNOVATION IN STUDIES

Skills for entrepreneurs

- Teambuilding skills
- Negotiating
- Problem-solving skills
- Customer-orientation

- Marketing and sales skills
- Administrative skills
- Experience
- Networking
- Social skills
- cognitive flexibility
- out-of-the-box thinking
- Good knowledge in your own specialization

Additional comments and suggestions:

“The education lacks orientation on problem-solving.”

“The courses on entrepreneurship focus on the practical things and the business idea itself.”

“The courses regarding entrepreneurship are very theory based.”

“The basic course on entrepreneurship for TSE students should be for everyone.”

Ideas for educators: how to acquire needed skills through education

- More orientation on problem-solving
- Multidisciplinary team-working
- Learning how to work over organizational boundaries (with people from different disciplines, organizations, sectors and backgrounds)
- Enhance communication between different faculties
- Developing communication skills in different language systems (like different industries)
- You should push the students to think more by themselves
- Course about the basic things like laws and regulations, fundings etc.
- course in innovation related to your subject
- Freedom of choice in tasks and topics

Suggested tools or approaches for innovation and entrepreneurship learning:

- Design thinking tool (Boost mentioned)
- Double Diamond
- Diversity enhancing
- Interdisciplinary courses
- Work placements
- Work experience
- Real life exposure
- Project orientation
- Hands-on practical courses
- Portfolio type of learning
- Labs
- Games and simulations
- Pitching
- Bootcamps – start-up step-by-step
- global virtual teamwork
- Trial and error

- Maturing (related to trial and error)
- Voluntary work, such as JCI
- resource mobility
- opportunity creation
- Basic business knowledge
- Recognition of the student's value
- understanding your own value when working interdisciplinary
- understanding "hackathons for everybody, not just for business students"
- "nobody told me at the university that my knowledge is valuable"
- Entrepreneurs should come and keep the courses on entrepreneurship
- entrepreneurs coming to class sharing their experiences

Entrepreneurial institution

- "The studies and working life are very much separated from each other in Finland"
- "There are good plans at the university, but they haven't been applied"
- "could be improved by challenging old habits and encouraging students to think out of the box."

Additional comments and suggestions:

"I've done a lot of different things besides studies"

ENTREPRENEURSHIP AS A CAREER OPTION

Knowledge of the industry

- The university
- Volunteering
- Knowing the right people
- Work ("studies is a nice add to it")
- Work placements /internships
- Life in general
- media, literature
- online
- Networking events
- Company projects

Additional comments and suggestions:

"You need job experience to first get a job"

A career option

- "I have an innovative mind-set, I have these ideas as a hobby and I'm planning to establish a company in the future"
- "I don't feel entrepreneurial, but team work and brainstorming on classes has made me more oriented"
- "I don't know if I'm going to be an entrepreneur, but I have good entrepreneurial skills and I've been on a start-up booth"

Additional comments and suggestions:

“Usually successful entrepreneurs are 40+ with experience. Students should get to work in companies to get experience and to get to know people to get into the ecosystem of start-ups.”

Skills through work practice

- soft skills, like presenting yourself
- data management skills
- entrepreneurial skills
- language skills
- connections
- theory into practice
- “is this something for me?”
- continuous skills development
- To develop: expertise on my own field
- judgement and decision making

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

Role of entrepreneurship and innovation in education in the next 5 years?

- Bigger role than now
- More well-designed courses
- Easier transition
- Towards problem-solving
- out of failure-thinking
- pushing into entrepreneurial mind-set
- gamification into connection with real life
- project-oriented
- technology will surely mix and speed things up. I feel that academia will have a lot to do in order to keep up. -> More openness, more collaboration.

Additional comments and suggestions:

“I guess there will be a greater and greater role for it, but I hope that would not be the biggest goal for the university studies. I appreciate science for its own sake and not just for the business. Innovation is very important too, but I believe you get better business and better society if science can work with its own goals as well without intervening too much. Innovation and science must listen each other as equals.”

How to ensure the best entrepreneurial-oriented and innovative education

- More co-operation between faculties
- Interdisciplinary courses
- University-business relations
- Student organisations should be more entrepreneurship-oriented
- a system to produce language speaking confidence

- more practical experiences
- To start that from the very beginning of the education (kindergarten, primary school)
- Innovative way of thinking should be skill to use all the time
- Exposing students with “real life”

Additional comments and suggestions:

Not everybody should be or try to be an entrepreneur.

“There should be something that would help to rediscover yourself after graduation

“who am I? Not a student anymore -> unemployed? No! Then what? (help with
Transition identity)

Annex 3 – Befindunge vun EuroNet, Italien

Outcomes from the group discussions with companies, EuroNet

The validity of the results

The 2 entrepreneurs interviewed are:

- 1 Small and Medium Size entrepreneur working in a consultancy company as manager (following named as “SME manager”)
- 1 small entrepreneur active in the handicraft and artistic products (following named as “Artisan”)

The entrepreneurs were difficult to be involved and the interviews were planned several times and changed because of their personal engagements in other activities.

After the lack of replies in the written form, the interviews were carried out personally face-to-face in an oral way.

To facilitate the collection of the results, the survey was translated in Italian and also the replies were provided in the Italian language.

A short presentation was introduced personally by EURO-NET staff using the content of the form to introduce to the project and to show a graphic showing the triangle of investigation (Teachers – Students – Entrepreneurs).

The interviews were carried out only in oral form.

General findings

The students should be equipped with practical training and problem-solving skills. The education is not still ready to prepare the students with the real needs to be recruited. The interaction within the business and the learning contexts are weak and structured.

A strong need to educate the students for innovation and entrepreneurship is detected.

BUSINESS DEVELOPMENT

Skills for entrepreneurs – existing and needed

For both, the technical skills are necessary. Management skills are essential to survive in the market.

There is a need to develop soft skills not acquired during formal education about the capacity to deal with complex problems.

The work-based learning is also important because younger students need to analyse and face real difficulties.

For the SME manager, the skills are acquired from continuous and daily learning with the support of national news about legal, fiscal and administrative aspects – the National Order of Fiscal Consultant is providing some e-learning lessons to be attended with a minimum per year (5 topics).

For the artisan, the skills are acquired in using new tools, instruments and in looking on the web about new methodologies and materials.

For both, there are chances for continuous learning offered by the local Chamber of Commerce e.g. seminars for internationalisation or ICT improvements

Innovation in the business development

The innovation is considered important but not essential for the artisan that is used to work in traditional contexts, while it is essential for the SME manager operating in a context needing a continuous and daily update of knowledge.

The support would come from the ICT to develop the businesses e.g. as a marketplace for artisan, as innovation for the consultancy for SME manager.

The use of new software should be supported by technical training (e.g. Consultancy software) for all the staff working with it.

Important educational support could come from the Chamber of Commerce or the professional National Orders or National Artisan Confederation, mainly in terms of practical training opportunities or seminars/meeting about relevant topics (internationalisation, networking, collaborations).

UNIVERSITY-BUSINESS COLLABORATION

Collaboration with education providers and students

No experience for the artisan.

Previous experience for the SME manager as a speaker in a seminar about entrepreneurship at the University of Basilicata. The talks were about the opportunities coming from the regional funds to support the start-ups from a consultancy point of view.

It could be interesting to collaborate for both but for different reasons:

- Use and test of new materials for the artisan
- Supporting the start-ups and new enterprises coming out from student's after the completion of their studies (as potential new customers)

Challenges encountered

The education is not preparing the students for problem-solving and for real needs. This is affecting the real needs in the enterprises while they are recruiting, they are obliged to train on the job the future workers with a waste of time and resources.

The students should be prepared, in the opinion of the manager to be more independent and conscious about their potential.

Students' entrepreneurialism and innovativeness

The skills are the confidence, willingness to afford challenges, adaptability, problem-solving.

Usually, the students are not considered for recruitment, only after an onsite training, internship and anyway after detection of their ability and skills.

Threats and demand for change

The work-based learning experiences should be increased rather than only theoretical learning.

The threats are about the large efforts made in terms of time and resources to train future workers about skills useful in the job. Sometimes, those efforts are vanishing because of the lack of interest/willingness of the students or because he/she is moving to other sectors/activities.

Suggested tools or approaches for helping students

Help the students to have a more clear vision about their careers and support them with suggestions about the steps to have success.

The innovation is interesting and engaging if it is presented in ways different than the ones included in the books – the training from books should be supported by visual elements and activities where the students feel more active in the training.

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

Educational support needed for business development

Both are important and they are considered by both entrepreneurs are deeply connected each other.

The innovation mind-sets should be introduced all across the education starting from an early age.

The entrepreneurship training should be reinforce in last years of education to prepare the students for future challenges.

Outcomes from the group discussions with teachers, EuroNet

The validity of the results

The 5 teachers interviewed are from two stakeholders:

- 3 teachers from Studiodomino: a VET provider active both in Vocational Training and master course recognised by the Regional Government in Basilicata
- 2 teachers from Secondary school (lyceum):

The teachers from Studiodomino know each other but they were replying independently to the survey. To facilitate the collection of the results, the survey was translated in Italian and also the replies were provided in the Italian language.

A short presentation to the focus group was introduced personally by EURO-NET staff using the form itself, there is an introduction to the project with a graphic showing the triangle of investigation (Teachers – Students – Entrepreneurs).

The interviews were carried out in written form for the ones from Studiodomino and in oral form (telephone) with secondary teachers.

General findings

The replies are different mainly because of the learning environment and of the professional skills of the teachers. In effect, a general finding would be possible by those elements as follows:

- VET teachers are calling for more work-based learning
- masterclasses (upper HEI) teachers are professionals and they are looking for problem-solving attitude and soft skills to be transferred to the students
- secondary teachers are obliged, in the last period, to be autonomous in their innovative and entrepreneurial learning and they are constantly looking for opportunities to get in contact with the enterprises

A general consideration should be related to the perception of the needs, for the educators to innovate the learning contexts in line with real needs for future jobs and entrepreneurship.

ENTREPRENEURSHIP AND INNOVATION IN TEACHING

Innovation in teaching

Thanks to a dynamic context, activating the participation in the lessons, investigating together real-cases, stimulating their interest for a more in-depth analysis, let the students choose a part of the topics to be learnt.

Additional comments and suggestions:

The VET teachers are perceiving as most important to let the students to be immersed in real cases, the secondary teachers are more focused on the innovation coming from problem-solving and autonomy in the decision.

Interaction with students thanks to digital tools, looking for the tools the students are using more (e.g. mobile phones, video tutorials). The secondary teachers that have replied in last days, in reality, are struggling with distance-learning with ICT tools – they have detected that the students are ready to use alternative tools e.g. e-learning, video lessons, training modules, online testing etc.

About the methodologies, it is clear for most of the teachers, especially for the ones working for private bodies (ref. Studiodomino), that the use of new tools is not enough to bring innovation in class, it is essential to detect their attention with active participation and by using an informal approach in the language and the attitudes.

Additional comments and suggestions:

The slides, training materials and books are not enough to bring innovation in the method.

Feedback

The secondary school system is collecting feedbacks via formal oral and written tests – a relevant change is coming this year after COVID-19 pandemic where the lessons are exclusively online and therefore, the teachers are experimenting novel ways to receive feedback from the students (e.g. online tests, video oral tests, online multiple-choice tests).

For VET sector and masterclasses (upper HEI) the feedback is embedded in the lessons with daily feedback from the students in the class.

Additional comments and suggestions:

Some teachers are conscious of their need for coaching skills in order to foster the group cohesion and the active participation of the students

Innovativeness and entrepreneurialism in teaching

The replies are very different and it depends on the subject and the educational environment.

For some of them is difficult because of the complexity of the subjects, for others is more about the topical aspects in line with real and actual situations.

Additional comments and suggestions:

One of the teachers (in marketing subject) has detected, as essential, the transfer of knowledge about soft skills in a less formal context.

ENTREPRENEURSHIP AND INNOVATION AMONG STUDENTS

Students' entrepreneurialism and innovativeness

The grades are relatively high (average value 7.5) with lower levels for secondary students and about the innovative attitudes of some students.

It is considered important the topical and updated knowledge about the subject of the teachers.

Additional comments and suggestions:

Some teachers are considering important the use of ICT and networking with enterprises.

Support from workplace

For secondary school is mainly coming from an autonomous impulse that is evolving, in a more structured but still confused way, in last days because of COVID-19 effect.

The contact with the business is rare and in some cases very intensive masterclasses (upper HEI).

Additional comments and suggestions:

The teachers, especially in formal education, were obliged to be trained, enrich their curricula with ICT knowledge and the use of ICT tools in class.

Challenges encountered

The main challenge is the motivation for all the teachers.

Once the motivation is ensured, the rest of the process is quite natural.

Additional comments and suggestions:

Usually, the students are non-confident and are resistant to the sacrifices in the learning process, but thanks to alternative e-learning environments the confidence is increasing without relevant problems.

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

Role of entrepreneurship and innovation in education in the next 5 years?

It is fundamental also over 10 years. The innovation would lose its exceptional characteristic to become ordinary and essential.

How to ensure the best entrepreneurial-oriented and innovative education

The replies are various as follows:

- more and constant active participation of the students in work-based real cases
- mandatory continuous vocational training also for entrepreneurs
- a structured and daily contact of the entrepreneurs with the educational system

Outcomes from the group discussions with students, EuroNet

The validity of the results

The 8 students interviewed are from two stakeholders:

- 5 students from Studiodomino: a VET provider active both in Vocational Training and master course recognised by the Regional Government in Basilicata
- 1 student from a VET public school
- 2 students from a Secondary school (lyceum):

The students from Studiodomino are from vocational and masterclasses and they have replied independently to the survey. The same for the VET student, while the 2 students from the secondary school were interviewed during a call conference via Skype.

The students are equally distributed with 4 male and 4 females – the age is going from 18 to 25 years.

To facilitate the collection of the results, the survey was translated in Italian and also the replies were provided in the Italian language.

A short presentation to the focus group was introduced personally by EURO-NET staff using the form itself, there is an introduction to the project with a graphic showing the triangle of investigation (Teachers – Students – Entrepreneurs).

The interviews were carried out in written form for 6 students and oral form (Skype call conference) with secondary students.

General findings

The interviews let emerge a situation where the students are lacking a clear vision about their careers and with a strong need to learn from practical work-based learning contexts.

It is evident also that the self-entrepreneurship is not considered as an option mainly because of the self-confidence not stimulated in the formal education contexts.

ENTREPRENEURSHIP AND INNOVATION IN STUDIES

Skills for entrepreneurs

Ability to manage, listen, work in a group, problem-solving, communication, technical knowledge, customer-orientation.

Additional comments and suggestions:

For some of the students, the main skill is rather an attitude: the curiosity.

Own entrepreneurialism

For most of the students, they consider themselves as innovative and interested in ICT but rarely entrepreneurial (only 2 on 8).

Additional comments and suggestions:

It seems that the students are low confident about their abilities to run an enterprise (especially the younger ones) and they are declaring a need for learning how to be innovative and become entrepreneurs.

Ideas for educators: how to acquire needed skills through education

The common situations are the school or universities difficulties. An added value is coming from work-based learning, work in group sessions, daily practical issues during the studies (e.g. living alone, struggling with expenses).

Additional comments and suggestions:

It is evident a lack of situations different from the school/university except for one case where the student declared also the importance of sport and activities in an association.

Needed skills

Management, real cases analysis, ICT, ability to decide, specific and technical competences.

Additional comments and suggestions:

One student has identified the power of the synergies coming from different specific and technical skills among other students/colleagues – it is relevant to become entrepreneurs together.

Suggested tools or approaches for innovation and entrepreneurship learning:

The tools and methods suggested are various:

- Business cases analysis
- Interactive presentations
- Brainstorming
- Laboratories
- Work-based learning experiences

Additional comments and suggestions:

The need for real cases and engagement in practical business activities is a very important issue.

Entrepreneurial institution

The students in most cases are declaring that the institutions are innovative and that is more necessary to visit the business and being involved in real cases.

For younger students, the innovation is lower in formal education even if in last days, after COVID-19, there is an important change, even if the school system is not prepared at it.

Motivation to study

Improve the skills and knowledge to have more chances in the job market, follow the ICT evolution, have a multidisciplinary knowledge.

Additional comments and suggestions:

For one student, it is important the masterclass because it is more advanced than the academic degree and it is coming in a period of her personal lifetime when she feels more mature and conscious about the choices for better employment and career.

ENTREPRENEURSHIP AS A CAREER OPTION

Knowledge of the industry

After studies at different levels and personal curiosity (only for 2 of them).

A career option

Almost all the students are not considering the self-entrepreneurship as a possibility at the moment. For some of them, the decision could come only after the completion of studies.

Additional comments and suggestions:

During the face-to-face interviews, it appears that there is an evident lack of vision about the coming future in the job market in a context where the students are insecure about their abilities to face practical issues out of the technical skills acquired during their education.

Skills through work practice

Professional development, possibilities for a career, autonomy in organizing and managing own work, possibilities to apply creative abilities, human relations.

The skills that would like to be developed are the problem- solving and the work in group attitudes.

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

Role of entrepreneurship and innovation in education in the next 5 years?

Both are considered as essential by all the students, for some of them, entrepreneurship and innovation are deeply connected.

How to ensure the best entrepreneurial-oriented and innovative education

Ability to have open minded students in an educational context more adaptive to the market needs and able to change itself in a continuously changing environment.

Additional comments and suggestions:

To develop the competencies and abilities for an entrepreneur to have an innovator role, able to introduce novel methods, working process and manage an enterprise continuously looking for.

Annex 4 – Befindunge vun Succubus Interactive Ltd, Frankräiche

Outcomes from the group discussions with companies, Succubus

Validity of the results

The interviewed companies are all dealing mostly with the digital economy at different levels of maturity. However, one of the interviewees is the director of a business incubator, therefore his feedback reflects this larger perspective than the entrepreneurs' one. All of them are based or have started their business in Nantes area and are expanding towards Paris but have larger ambitions.

The introduction to the CDTMOOC thematic and objectives has been provided by the use of the leaflet, email and a personal presentation.

General observations on discussion with companies:

All interviewees easily agreed on the fact that **Innovation is the essential building block** of their entrepreneurial adventure, its essence and its winning asset while facing competition. **Differentiation** is the common understanding about the impact brought by innovation.

All of them share also the view on what competences are needed for an entrepreneur: apart from **own domain-specific knowledge expertise**, all entrepreneurs need to be knowledgeable in **management, cash flow and accounting, finance and fund raising, marketing and sales**. However, all of these competences can be acquired and developed over time.

Lifelong learning is a necessity and is fuelled typically by participating in workshops, following MOOCs, performing a permanent technological watch-out. Other relevant sources are given by **networking** and trial and error, that is, **learning from own mistakes**. Therefore, what emerges is that a good mix of hard and soft skills is required. **Emerging necessities** will also drive the acquisition of new skills. The **level of maturity** of a company influences also the kind of competences to be developed. **Everyday practice** of entrepreneurial activities is the other key learning component for an entrepreneur.

Internship and use of intermittent workers are the ways students that have the potential to be hired are tested and taken on board. Usually the courses in marketing and entrepreneurship delivered by the interviewed entrepreneurs themselves at universities and academic institutions represent a way to reach prospect collaborators among the students. This way a fruitful collaboration with academic institutions can be started and sustained.

However, students taken on internships **lack of experience** on the field and need to be trained on the core technical skills and they need to develop the good reflexes too. The good side is that they bring in a **fresh new perspective and ideas** as well as their **up-to-date theoretical expertise**.

Most importantly students need to have the right **attitude** to become a potential new collaborator: 1) **adaptability**, 2) **ability to learn** and 3) **willingness to grow**.

Usually it is easier to get along with interns than with academic institutions since their objectives differ: the former look for a real opportunity to improve and test themselves in a real working

environment, whilst the latter are just focussed on their business which means to **allocate all the students** in different companies for their mandatory internships. However, also with some students there is the actual risk of **lack of motivation** once satisfied their need of finding an internship. This can be a real source of waste of time.

There is societal trend that fosters people to become independent from a salaried job more and more. Therefore, education has to follow this emerging need by **focussing on entrepreneurship and innovation** in a consistent way and by supporting students to develop their interest in these subjects in two ways: 1) by **fully involving students into long term-projects**, and, 2) by **integrating entrepreneurs in the faculty** body.

BUSINESS DEVELOPMENT

Skills for entrepreneurs – existing and needed

- Basic skills
 - Ability to learn
 - Curiosity
 - Own domain technical expertise
 - Learning from experience (from own mistakes)
- Skills that are necessary but that can be learned over time (**self-development** – MOOC; **practice**; external sources – **networking**, workshops, conferences, etc.)
 - Management
 - cash flow
 - accounting, finance
 - fund raising
 - marketing
 - sales

Innovation in the business development

- " That's all we do, we spend all our time generating new products and ideas. "
- "It's a very strong part, you have to be consistent and **differentiate** yourself from your competitors."

UNIVERSITY-BUSINESS COLLABORATION

Collaboration with education providers and students

- **Internship** and use of intermittent workers for testing potential new collaborators among students
- Entrepreneurs give courses in marketing and entrepreneurship at universities and academic institutions
- Such courses represent a way to reach prospect collaborators among the students.
- academic institutions need to provide internships to their students in real working environments.

- “Yes, historically we have often taken on interns and alternates who we then hire. It's a culture at home, we like it and we're interested in it. I have even taught courses at the CAF.”

Challenges and opportunities encountered

- students taken on internships **lack of experience** on the field and need to be trained on the core technical skills
- students bring in a **fresh new perspective and ideas** as well as their **up-to-date theoretical expertise**.
- students need to have the right **attitude** to become a potential new collaborator: 1) **adaptability**, 2) **ability to learn** and 3) **willingness to grow**.
“Competency number 1 is adaptability, the ability to learn and change. Next comes technical expertise”
- During an internship, students usually look for a real opportunity to improve and test themselves in a real working environment
- However, some of them **lack of motivation** as they just want to satisfy their need of finding an internship.
- Another problem is given by the diverging interests of educational institutions and of companies, since the former just want to **allocate all the students** in different companies for their mandatory internships.
“(educational) Institutions are focused on themselves and their business, they lack the ability to listen to the needs of students and entrepreneurs.”

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

Educational support needed for business development

- “I think it's working on their long-term vision with long term projects. They need to be involved in projects from A to Z.”
- “a lot of people are already doing business projects, teachers are more often trainers and consultants. What would be nice is to have entrepreneurs give courses.”

Role of entrepreneurship and innovation in education in the next 5 years?

- “I think it will be 20% of the skills taught. We're going to get people thinking. There will be less salaried work for more entrepreneurship because people will want to work for themselves or on several perimeters.”
- “In my opinion this is fundamental, but there is an entrepreneurial injunction that is developing.”

Outcomes from the group discussions with teachers, Succubus

Validity of the results

The interviewed teachers come from two different private institutions related to digital technology and arts: E-artsup is a well-established university network across France specialized in digital creativity and multimedia, whilst the Gaming Business School is a brand new school of management specifically addressed to the challenges and professions of video game and e-sport based in Lyon.

Teachers' core academic interests and teaching are particularly different, since one is involved in management techniques, whilst the other is a specialist of a particular design tool. Both teachers are familiar with entrepreneurship education but as a practice in their teaching rather than a specific part of their curricula.

The introduction to the CDTMOOC thematic and objectives has been provided by the use of the leaflet, email and a personal presentation.

General observations on discussion with teachers:

Despite the two teachers have to deal with two different kinds of students and teach two very different subjects, still they share a common approach: **active practice through role playing and use cases analysis** are considered key factors **to develop creativity and entrepreneurial spirit**. This is sought in the present implementation of their courses, but is taken for granted as a fundamental and more generalized **building block for the future** of education (and not necessarily on entrepreneurship as a domain) in the 5 to 10 years ahead.

Self-confidence, curiosity and self-development have to be cultivated and instilled in the students as well in order to foster not only entrepreneurial spirit but also a better way of adapting in an increasingly changing market landscape.

But **getting out of own comfort zone** is a basic requirement for the teachers themselves to keep their knowledge up-to-date and validated by practice.

Finally, **being exposed to different sources** of inspiration (conferences, networking, events, cultural and artistic material, and, of course, scientific literature) is important for both teachers and students, since the context can affect enormously the attitude towards innovation and undertaking new challenges.

ENTREPRENEURSHIP AND INNOVATION IN TEACHING

Innovation in teaching

- Role playing and use cases analysis to develop creativity and entrepreneurial spirit.
 - "I also organize my classes in the form of sprints"
- Knowing what has been done before is as important as what is up today.
- Design Thinking, Sprint Design, Agile methodologies and use cases have to be accompanied by general culture sources such as films, games in order to have a

holistic view of what has brought us up to today and what are current basis for the future.

- In addition, being constantly up-to-date, participating to events and conferences and developing own networking capabilities, are absolutely fundamental to be prepared.
- The work setting can affect a lot the way one can be exposed to the improvement of own competences and knowledge. The more it offers opportunities to exchange, the more helpful is. However, own engagement and resourcefulness have to be personally sustained.
- Being challenged to test own methodologies and for doing this to develop a network of professional peers and entrepreneurs that can test, review and provide feedback is paramount.

Feedback

- Formally: Direct evaluation from students or educational managers.
- Informally, via dialogue and the students' implementation of the principles taught in the classroom.

ENTREPRENEURSHIP AND INNOVATION AMONG STUDENTS

Students' entrepreneurialism and innovativeness

- Despite the knowledge of past cases and experiences and the digging into the scientific literature corpus are certainly useful to be informed and aware of lessons learnt, the experimental approach and role playing are certainly more effective in raising interest in entrepreneurship as they leverage onto natural passion for the subject and the need of being independent.
 - "There are 2 variables that affect entrepreneurship: passion and the need for independence."
- Pragmatism and originality win (whether using role-playing or referring to scientific literature)

Challenges encountered

- Increase personal self-confidence in order to dare and get out of own comfort zone can be supported better by project-based learning, workshops and self-development.

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

Role of entrepreneurship and innovation in education in the next 5 years?

- Students will be better prepared to face an ever and more quickly changing market landscape.
- New forms of education will emerge as well.

How to ensure the best entrepreneurial-oriented and innovative education

- A better integration in the formal educational activities would be needed:
companies should be more active in the formal education,
students should be invited / allowed to start and bring on simulated and real entrepreneurial endeavours,
students should tap more into resources to increase their background knowledge.

Outcomes from the group discussions with students, Succubus

Validity of the results

The students contacted for this survey have different levels of experience and follow different curricula at university level varying from a specific technical cursus in UX, to communication, to business administration.

Their perception about the subject on entrepreneurship and innovation varies accordingly, from whom that has not experimented a lot and is aware of the need of filling knowledge gaps before daring anything independently, to whom considering herself already innovative but not much interested in starting an entrepreneurial activity in the short term, up to whom that has already proved oneself on the field and succeeded.

The introduction to the CDTMOOC thematic and objectives has been provided by the use of the leaflet, email and a personal presentation.

General observations on discussion with students:

There is a different self-perception about the personal level of entrepreneurial spirit and of the attitude to innovate depending on the **experiences** and possibly also on the level of maturity in such young people. Both aspects are greatly impacted by the level of **self-confidence** acquired so far. In any case the two concepts are clearly understood.

According to the students, **a vast and varied range of competences is necessary** to become a good entrepreneur. A good mix of **managerial** (empowering and delegation, strategy, quality) and **business** skills have to be necessarily complemented by a solid set of **soft skills** (collaboration, networking, communication, team building, negotiation, leadership) and attitudes (being rigorous) is needed. But in particular two **mind-sets** can really make the difference: **curiosity** and **service**. The first one is the driver of innovation and of attracting the right people to collaborate with. The second one is the driver of the commercial success.

Networking and any personal working experiences have largely contributed to start developing the necessary competences to become entrepreneurs. In the most fortunate case also the school provided the good settings for this

In general, the students would like the educational institutions to help them in **filling up the knowledge gaps** they think to have, in particular in relation with their specific curricula that cannot cover all the skills that they identified. Noticeably, there is also who would like to be helped in developing more a **better understanding of the self**, in order to know own forces and weaknesses, as well as learning how to interrelate with other people, being these fundamental assets to be an entrepreneur. A change in culture is also requested, in particular for what concerns the perception of **failure as a learning experience** rather than a blocking obstacle. Finally, a **closer relation with the market** and the real business world is important to get the right perception of **own value**.

Serious games and **project-based learning** are certainly useful tools that can be implemented in order to step ahead, but what would make the real difference to grow own entrepreneurial spirit and capacities is given by a **direct contact with entrepreneurs**. In that case, **workshops, conferences**, but most of all, **mentoring** and **tutoring** would represent the real change maker to improve.

There is generally a good perception about the level of innovation and entrepreneurialism of the educational institution, but this might vary, in particular for what concerns the innovativeness, according to the different cases.

The main driver is given by the desire **to learn more** and, at the same time, to be better prepared and having **better chances for a professional career**.

Knowledge of the sector has been mostly developed through the educational environment and then reinforced through personal experiences.

Becoming an entrepreneur in the short term is not necessarily a must for the interviewed students. However, this depends also by the kind of curriculum they are following: a UX designer is certainly keen in starting a freelance career rather than students in business and communication studies that prefer to accumulate experience before deciding to become independent consultant or even entrepreneurs. In any case the challenges that are related to start an entrepreneurial endeavour are considered and evaluated, including the **work vs private life balance**.

When confronted to the search of a job or of an internship, there is generally a good attitude to keep the door open not only **to get in depth on the core competences** of the professional domain but also **to learn new skills**. However, the employment should not be too far from the core interests.

The students have a **positive perception about the future of educating on entrepreneurship and innovation in the future**. This would be an important lever to the **emergence of new start-ups** and would be particularly effective in domains at high technological impact like engineering. However, it would be better whether these topics would be introduced in the educational system **at an earlier stage** as it happens in other countries (with the use of role playing in kindergartens and primary schools).

There is not a one solution fits all to get a better education on entrepreneurship and innovation. A mix of **new learning platforms, project-based learning** along with a greater involvement of **experienced entrepreneurs** and the provision of **better tools** to better knowing the self would certainly contribute to this goal.

ENTREPRENEURSHIP AND INNOVATION IN STUDIES

Skills for entrepreneurs

- Management skills
 - Empowering,
 - Delegating,
 - Strategy
- Business skills
 - Marketing
 - Sales
- Soft Skills
 - Collaboration,
 - Networking,
 - Communication,
 - Team building,
 - Negotiation,
 - Leadership,
 - Interpersonal skills,
 - Organization
- Attitudes / personal qualities
 - Being rigorous
- Mind-set
 - Curiosity
 - Service

Additional comments and suggestions:

“Have a sense of service because it will impact the network and customers.”

“Organization is also important, knowing how to delegate, having good leadership, knowing how to surround yourself with the right skills to do what I don't know how to do.”

“Curiosity. Knowing how to look for information. This is very important, it allows you to keep an eye on things and to acquire knowledge and experience.”

“The social aspect must also be developed: knowing how to make relationships and play with them. This also requires qualities and interpersonal skills.”

“Being rigorous is also important and intimately linked, it is necessary to know how to work and communicate with people with quality content.”

Ideas for educators: how to acquire needed skills through education

- Filling up the knowledge gaps they think to have, in particular in relation with their specific curricula that cannot cover all the skills that they identified.
 - “I have skills in legal and financial management. I'm interested in engineering but it's complicated to acquire as a skill because I'm in business school.”

“Having an eye on the market, we are not taught enough to value our skills with companies and to situate our skills and their value on the market.”

“To have a different view of failure. I like the American model which shows that failure is not an end but a springboard.”

“Self-development, knowing who I am in life, understanding oneself, it allows you to better understand people and life and thus everyone's experiences and ideas.”

Suggested tools or approaches for innovation and entrepreneurship learning:

- Serious games,
- project-based learning,
- workshops,
- conferences,
- mentoring,
- tutoring
- work placements
- work experience

Additional comments and suggestions:

“Coaching and advice to develop one's ideas would be interesting, as with the Entrepreneurship Network for example.”

“I would like teachers to organize meetings between entrepreneurs and students, and conferences on entrepreneurship themes.”

“This can also be done through innovative tools such as serious games or interactive works/projects. »

Entrepreneurial institution

- “I find that my school is receptive and for me this is an innovation because you don't find this in every school. The school could improve in terms of work rhythm (2 days at school, 3 days in the company), but school days are in the middle of the week and this can cut off projects in the company and it blocks the creative and entrepreneurial process.”
- “The institution where I am studying is entrepreneurial and innovative because it helps students through its courses and its various professional interventions to build the knowledge and skills needed for the future as an entrepreneur.”
- “Entrepreneurial yes, innovative not necessarily. It could improve by giving courses on new technologies and new market practices, as well as on accounting.”

ENTREPRENEURSHIP AS A CAREER OPTION

Knowledge of the industry

- Educational system
 - Secondary School
 - University
- Working experiences
- Internships
- Family interests and know-how
- Curiosity (online searches)

A career option

- It depends on the curriculum
 - Optional for business / management and communication studies
 - A natural outcome for professional / vocational studies
- “Yes I want to start freelancing sometime after my degree (3 to 5 years later, less if I have an interesting opportunity).”
- “I lack the management skills to manage my time and my activity.”
- “I would need a personal room, or a dedicated room to concentrate and separate my private and professional life.”
- “Another very important thing is to have some money saved, because you can find yourself without a job overnight as a freelancer, to secure yourself.”
- “I don’t feel entrepreneurial, but team work and brainstorming on classes has made me more oriented”

Skills through work practice

- Core competences,
- soft skills,
- new skills (in other departments, etc.)
- “I am looking for assignments to develop the skills I am applying for, but also to broaden my knowledge. I wish to develop my business expert skills, my interpersonal skills, my leadership. I also want to learn new skills from other departments or services.”

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

Role of entrepreneurship and innovation in education in the next 5 years?

- Better teaching
- Better opportunities to learn
- More impactful in society

- Engineers will benefit more than all
- They should be taught earlier

Additional comments and suggestions:

“If I had been taught to start earlier, I probably would have started my business by now. Entrepreneurship should develop much earlier, like in kindergarten in some countries with role-playing. It's very cool and interesting. We need to change the taboos in France around money.”

“I think that in 5 years, students will be well trained in entrepreneurship and who knows, maybe many of them will want to create their own business no matter what their field of activity.”

“I think that this will develop in very specific fields, such as engineering. Moreover, we can see that start-ups also have the opportunity to innovate.”

How to ensure the best entrepreneurial-oriented and innovative education

- not one solution fits all,
- new learning platforms,
- project-based learning,
- greater involvement of experienced entrepreneurs,
- better tools to better knowing the self

Annex 5 – Befindunge vum Art Square Lab, Lëtzebuerg

Outcomes from the group discussions with companies, Art Square Lab

Validity of the results

We managed to bring together new entrepreneurs as well as mature entrepreneurs from bigger companies as well as the intrapreneurs in corporations like bank. We reached out to them by personal contacts knowing that they might bring a valuable input to the conversation.

The entrepreneurs were invited for a focus group to Art Square Lab office, we have used the PP and flyers of the project.

General findings

An important part of the conversation (and the reason why we could not follow the questions) was the common understanding of entrepreneurship: is the horizontal skillset or ability to set up and manage own business. If this is a skillset, than in the point of view of the larger companies the discussion also should focus around intrapreneurship that they actively promote inside their workplaces (e.g. by developing entrepreneurial programs for employees, who in turn might create a spin-off inside the company).

BUSINESS DEVELOPMENT

Skills for entrepreneurs – existing and needed

- About hard skills, participants shared that they are more easily learned than soft ones. Some might vary depending on the activity, as for instance communication skills might be more important in a selling activity than an IT one, which involve less contact with customers. The skills needed might also vary if the entrepreneur is new to it or experienced. For some participants it is important to have basic knowledge of various fields as **accounting, finance, tax law, and marketing**, considering that numerous entrepreneurs create a one or two people company. In some participants' point of view **organizational skills** are needed, notably to acquire some self-discipline, as **methodologies and concrete tools** to reduce the risk of failure (business canvas, lean methodology...). **Negotiation skills** have also been mentioned as **communication skills**, the ability to **sell oneself**, be **one's enterprise ambassador** and to **build your ecosystem**, to **connect with peers** through social media (Instagram story for instance) etc. Having knowledge of **existing IT** as developing a **technological watch**, and being able to **combine this knowledge with creativity** is perceived as important as well.
- About soft skills, **attitude and mind-set** were discussed extensively. From the discussion it appeared that intrapreneurship is very important, as entrepreneurship, and that the entrepreneurial mind-set may express itself as an entrepreneur or as an employee, part of a company. As for this mind-set numerous skills have been

mentioned. An **attitude toward failing** is important, to not fear it too much, rather accept it as a part of the process and that it brings meaningful information in order to move forward. The participants mentioned the need to develop entrepreneurs' ability to **deal with change on an everyday base, be flexible and adaptable**, and learn how to fail quickly at cheap cost through the **lean start up methodology**. It was also mentioned that entrepreneurs in the early developments of their projects should stay **open-minded** to the fact that their idea might need to change and evolve considering the market. **Curiosity** has also been mentioned, entrepreneurs should explore beyond one's industry. **Leadership** has been mentioned: being genuinely interested in people, being human-centered, being interested in problems and opportunity driven, being aware of the potential of others and being able to leverage the group effect, to connect and exchange with others, to give room for reflection. Entrepreneurs should **be proactive**, make things happen (**hand-on attitude**) and be **bold**. **Creativity** was also listed as a skill that entrepreneurs need. It was mentioned that some programs in big companies which aim at creativity involve applying new pieces of knowledge to current processes. For the participants, entrepreneurs should develop their **learning skills and continuously learn**. Reading books, watching movies, being mentored, listen to testimonials (and failures) of successful entrepreneurs, going to conferences and workshops, have been mentioned as ways to develop one's entrepreneurial mind-set.

Innovation in the business development

- One of the participants is a coach in an important banking group in Luxembourg. He mentioned that the banking sector will be disrupted in the 5 years to come by technology, and that there is no way to know how. Hence, a positive attitude toward change and innovation play an important role in the company's culture and are enhanced through numerous initiatives (innovation/boot camps, design thinking academies, innovation labs, scouting and venturing in the fin-tech market, coaching through a method combining design thinking, lean start-up and agile philosophy...). For this participant the individual in the company should have an entrepreneurial mind-set, but the company, through its culture should support the individual, in order to allow innovation to happen.

UNIVERSITY-BUSINESS COLLABORATION

Collaboration with education providers and students

- A participant mentioned being a speaker in educational events in Luxembourg through the (CCLux) Luxembourgish Chambre de commerce's special initiative called "Relation-Ecole-Entreprise"(REE). As a part of this initiative the participant goes to high schools and universities in Luxembourg in order to talk about entrepreneurship, business creation, opportunities of becoming entrepreneur as well as: Why to become one, how to start "risk-free" and what exact project the students could start with. These sessions take between 2 to 4 hours per class and are held approximately 1 or 2 times per week, before 20 to 90 students. Besides often the students come to the CCLux or House of Entrepreneurship (HoE) for a workshop [Editor's note: the

House of Entrepreneurship is a department of the Cclux]. Sometimes conferences are organized with approximately 120 students, where the director of the Cclux comes or even an established entrepreneur, talking about his experiences. Beside the Cclux, the participant mentioned the association “Jonk Entrepreneuren Luxembourg asbl” (JEL) which organizes and offers different programs in order to introduce youngster to entrepreneurship and to open their horizons in domains of project management, innovation and, as said, entrepreneurship. They offer real and accredited school programs during one or more years (mini-company, young enterprise project, ma premiere entreprise, etc.) but also punctual workshops and sessions like the innovation camps (1 day) or job shadow days (1 day) etc.. One of the programs is as well the “Fit For Life” program (6 hours of class teaching about salaries, insurances, loans, debt, etc..), which is held in the classrooms of the students often between 14 and 17 years old. This is one of the programs, the Cclux participates as well, besides its own REE sessions. The JA Alumni is a program of the JEL, where participants of Jel-programs can become a member of the alumni and be part of a network of young active people. JA alumni organizes exclusive conferences all around Europe.

- Finally, HoE and Cclux are partners of the Uni.lu Incubator. Two of the participants in this context offer coaching and trainings to their start-ups.

Students’ entrepreneurialism and innovativeness

- for some participants reducing the fear of failure and creating some psychological safety are very important. To answer the questions of why and how becoming an entrepreneur, as “what to do”, helps. Explaining what is entrepreneurship, what qualities are needed, combined with hard skills, tools and methods to be used to start. It was also pointed out that coaching and mentoring are important and should be combined with theory, and that the students might need someone able to answer their questions through their evolution as entrepreneur in the making.

Challenges encountered

- openness of the company for entrepreneurial mind-set and trail/errors of the employees; the sandbox space where ideas can be tested, where prototyping can happen and where there is no punishment for mistakes. For example in one bank there is a program for young graduates/last years students who can work flexibly in various projects and are expected to bring an interesting input and more innovation. They are welcomed to make more mistakes than other employees and they are often offer the job afterwards.

Threats and demand for change

- if education will not change to train more future competence of the students and let them research, ideate, prototype and test - the students will have a very little chance to develop new skillset needed for the jobs of the future. More project oriented work related to reality is needed.

- Luxembourg specifically would like to have the label of “start-up nation” but most of the small companies are imported to the country and the local mind-set (high risk aversion) promotes wide employment in public sector and secure work career, with very little risk.

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

Educational support needed for business development

- It was added that having experienced entrepreneurs sharing their failures would be a powerful tool to create this psychological safety. Moreover, to a participant, entrepreneurship is not new, hence what students need to know is what it means to be an entrepreneur today.
- For a participant there are 2 types of potential entrepreneurs: the first one has a vision and should stick to it, believe in it. The other one is learning how becoming an entrepreneur, and to do it a good way would be by experimentation and a small steps approach: the potential entrepreneur shall start a small project (as an event for instance) with a clear output, learn by doing and go bigger. This experience being a good way of learning how one’s manages, how one is acting and reacting in the context of a project. The participants share the idea that learning by doing is important when it comes to entrepreneurship. They propose the use of visual examples of the steps behind creating a business project.

Role of entrepreneurship and innovation in education in the next 5 years?

- it will become a “must” for the companies to employ people with entrepreneurial mind-set, also those who have already experience with running a start-up (even if they learned from own errors).
- as mentioned above the innovation in education is generally welcomed but must be connected to the needs of the market, flexible, promoting life-long learning. As the trends for 2020 say (Wired magazine) maybe in the future our study time will be dispatched in various moments of pour professional life more naturally.

Outcomes from the group discussions with teachers, Art Square Lab

Validity of the results

The teachers were recruited by mobilisation of contacts in the educational sector in Luxembourg: at schools, university and educational initiatives. In result 7 university teachers and one secondary school (Ecole De Commerce et de Gestion) teacher were present. All of them were selected based on their interest or link to the entrepreneurial education (either as research topic or direct work with the students on this topic).

Power Point with the questions was projected.

General findings

Generally the participants agreed that there is a shift in teaching entrepreneurship towards a horizontal skill-set that allows students to put ideas into actions (not necessarily to start the business). It is now one of the future competences and cannot be taught only at school- needs to be completed by life skills, practice, cross-sectorial experiences.

ENTREPRENEURSHIP AND INNOVATION IN TEACHING

Innovation in teaching

- One participant who teaches design do it through an industry project in which students using design tools develop an understanding of the problems, of clear barriers, and in a short time frame develop solutions. The idea is to foster students' entrepreneurial skills by doing, supported by a theoretical background. In addition to learning by doing, another participant mentioned the study in detail of key examples in order to see how other entrepreneurs have done, what risk had to be taken, in order to succeed. Thus, hearing testimonials is very powerful to help students being less risk-averse. Also spending a lot of time on prototyping skills allows the students to see a way of reducing risk, managing risk. The participants also help the students realize that they are more imaginative, more creative, than they give themselves credit for, and those moments of self-awareness are important in the journey to an entrepreneurial mind-set.
- A participant mentioned that an entrepreneur needs a range of experiences. And for many participants learning by doing is the best way to transfer a bit of an entrepreneurial mind-set. It is also transferred to students through a lot of team work.
- The participants mentioned that they take quite a bit of time at the start of their course for a personality awareness process. From their point of view, students need to know who and what they are. Trough personality tests they help them assess their propensities (their risk propensity v. risk aversion notably) and short-comings, and give them a vision of how their brains work. Students are given a number of creativity tasks using classic design tools in order to realize that they are more creative than they think they are. Students are also given tools to be able to assess if their ideas and decisions as entrepreneurs are desirable, sustainable and doable. Another tool mentioned is a cultural platform for students to experiment and fail. As they are being highly challenged in a safe space, this tool allows to unlock creativity. Another tool used is the abstraction layering.

Additional comments and suggestions:

It was essential to start with the explanation of the definition of entrepreneurship as it turned out that there might be a difference in understanding of the term. The participants started by defining what "entrepreneurship" means to them:

The ability to seek new opportunities that have not been encountered before, to challenge the status quo, do something new, to be outside of your comfort zone, to be empathetic. A participant mentioned interdisciplinary centres in which entrepreneurship means being able to make new connexions between knowledge, information and people. An entrepreneur is also seen as someone who is solution-driven, and have a long-term vision, who is a visionary as someone who has the ability to imagine something that doesn't already exist, something that might even be seen as "crazy".

For another participant it is the ability to become creative in order to achieve one's goals and dreams despite resources boundaries. It is a combination of vision and conviction (usually people might have one out of two) for another one. For all it is a disposition, a mind-set, which comes from embodied characteristics in one's character as imaginativeness and lacking the common risk/loss aversion. These embodied characteristics, part of one's personality. It is explained by a participant that this mind-set comes from patterns developed in one's brain in early childhood. And if these haven't been developed, they take time to be unlocked and need to be reinforced over a long time: "it takes time to rewire the brain so that one becomes less risk-averse and more imaginative". However, from this postulate, the participants try to transfer innovative and entrepreneurial mind-set to their students.

Feedback

- Teachers are soliciting feedbacks at multiple times, through informal conversations, for instance after class. Moreover, at the end of the course cycle the teacher give a form to the students, this feedback is for the teacher only. Finally students have an opportunity to give a formal feedback which goes through the university channels. Teachers also often receive emails after the course of students about the use they made of their learned skills, for instance if they implemented it in their company.

ENTREPRENEURSHIP AND INNOVATION AMONG STUDENTS

Students' entrepreneurialism and innovativeness

- Some participants, teaching in a private university, specified that because of the Design and entrepreneurial brand of the university, it attracts more entrepreneurial students than average, students who want to do a MBA and have with big dreams. But even considering this they consider that they could be a lot more entrepreneurial and innovative if they had started learning these skills at school instead of at the university level.
- For other participants, in public university and schools in Luxembourg, all students are in some way entre/intrapreneurial when they are involved in a course where they learn by doing. The students are found very motivated and liking these programs. The participant would evaluate that 7 to 10% of students are in fact entre/intrapreneurs.
- A participant listed initiatives in the Luxembourgish University that support entrepreneurship/innovation: they target all the students at the university, and try to give them an entrepreneurial/intrapreneurial mind-set (leadership skills,

negotiation skill, pitch skills, selling skill) though for instance: hackathons, innovation camps, ideation camps, entrepreneurship course with a high practical side, a special PhD path, summer school for one week with PhD students and researchers with service de la Jeunesse, specific events as workshops with special speakers from the MIT entrepreneurship centre. It's been mentioned the tight relationships between the University and the Cclux and the HoE in educational programs and events with exchange of human support for instance.

- Another participant mentioned challenges proposed by external partners to their 16-17 years-old students. They then have to analyse the problems, find solutions and present them. The small enterprise program has also been mentioned. There is also another program offered to BTS students which is a competition in which they have to develop a business idea and create a business plan. Some young students also do a week internship which give them a first contact with the business field. A 4 months internship is also included in the curriculum of university students

Challenges encountered

- As for the participants teaching in private universities, they find that they receive a lot of support from their workplace. Hence, the teachers are invited to use their own connexions, however in case of lack thereof, the university will mobilizes its scholarship and provide partners. The university supports also the overall course development. Generally, the participants find that the university puts a lot of value in its students' outstanding experience, and is prepared to invest in it. An example was provided with a course in collaboration with a hospital, in which students were invited to redesign a process. They led interviews with patients, analysed patients' journey and redesign it, and fully developed solutions. Wishing to implement those solutions the hospital asked if the university would collaborate with them one more semester on the implementation of the solutions. Even in this unprecedented situation, the university supported the project and created the law structure to make it happen
- As the main challenges, the participants mentioned that they find the students to be stuck in the past, to have issues around their ego and defence mechanism. They find that a key barrier difficult to break is around failure and what it means for their identity, they have difficulties seeing failure as a step toward success. The risk-aversion barrier has been mentioned several times by the participants.
- A participant noted that the majority of students doesn't have an accurate vision of the job market today and what awaits ahead of them, most of them think that they will find a job at the end of their studies and will stay at the same company for the next 40 years, and that vision of a linear career-path is not accurate anymore.

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

Role of entrepreneurship and innovation in education in the next 5 years?

- For a participant, we will witness big steps in every direction, particularly in computer technologies. But also around power, political affairs, and we will witness an economical shift as a social shift. An important question will be how much we can take in from various information sources, retain it and make novel connections between things, unconnected and disparate information. Hence a critical way of thinking, an innovative mind-set will be important skills in order to be well-equipped no matter what direction the future goes.
- For another participant the students will need to have more awareness, to be psychological more advanced, to know who they are and be advanced human being with high moral standards in order to change the world. For this participant future entrepreneurs will have an impact, on other people, on their environment, and their education should help them be aware of that fact, to have consideration on their behaviours and decisions. To this participant education should help bring more entrepreneurs that think more holistically, systemically and sustainably, than selfishly. For other participants, students could be made aware of the fact that being an entre/intrapreneur is a way to have an impact, to act on things that matter.
- Another participant, mentioned that students should be made aware of the down side of being an entrepreneur. That is could be difficult to maintain a balanced way of life, that many entrepreneurs are obsess with their entrepreneurial activities and have trouble making time for other things (friends, family, an healthy life style...).

How to ensure the best entrepreneurial-oriented and innovative education

- The right attitude from teachers has been cited as a way to make the students experienced notions like co-creation, collaboration and the right attitude toward failure. Hence instead of being in a very top-down pedagogy, in which the teacher is supposed to know everything, and the students have to navigate by themselves, the teacher can demonstrate co-creation and the right attitude toward failure. Therefore a puzzling question from a student can become the perfect opportunity to embark the class-room on a journey to find the answer together, the teacher being comfortable with not knowing.

Outcomes from the group discussions with students, Art Square Lab

Validity of the results

The students were invited by the partner school of business and management who is interested to become associated partners of the project. One of the subjects taught is Entrepreneurship and therefore the school management decided to collaborate with us on this focus group.

Process of the discussion: supporting tools (e.g. PowerPoint, drawings, etc.)

The PP was planned but at the end the room at school was not properly equipped.

ENTREPRENEURSHIP AND INNOVATION IN STUDIES

Skills for entrepreneurs

Mainly students connect entrepreneurship with responsibility and innovation. They consider that part of entrepreneurship is to take decisions and be responsible for them. Creativity is also an important part of entrepreneurship, how to come up with new ideas, respond to the needs of users, create new solutions that already don't exist.

- I like to take responsibilities, to make decisions for one group of people. It means a lot for an entrepreneurial mind-set, it is really important to make decisions and take responsibility for it.
- I like working for myself, to do it alone, not putting work to someone else, even if it fails, I like to take responsibility.
- Need to be independent, taking decisions.
- I am the kind of person who likes to make decisions. For example, when we have group work I feel comfortable to make decisions, if they are not too sure, I am making decisions.
- I think that many young people have a problem to step out, to make decisions, to develop their own ideas. Better stay behind them.
- For me to be innovative it is probably the most important,
- I would like to set up my own company also, but first need to finish school and get some capital.
- I think that I am also a very creative person, I like to create new things. I would also like to have my new shop. I have an idea, but not concrete. I come here to learn more, to listen to other people, and get inspired.
- I also would like to have my own shop, but already people are using this idea. I need to find some more innovative ideas, because it wouldn't work. It is a little bit risky at the moment.

Additional comments and suggestions:

The students would like to learn negotiation and modern approach in business like agile, design thinking, students mentioned also creativity. They are afraid that knowledge they get in school is not updated. They would like to learn also in a different way, also the way they learn, they mentioned that through collaboration and peer learning they could learn more. They would like to avoid silos, which already exist in school (specialisations) and mixed students to share different skills

and competences and collaborate on some projects. Another important skill is how to build a network, where to find potential partners, develop ideas, build companies.

It's like Brandon said, negotiation. The world is open.

I found school is pretty good, about sales is good.

I would like more recent approaches, about products, like this mooc in school. Updated knowledge.

Maybe ... There are 3 different sections. But we should cooperate, do projects together. I have more skills in marketing, but I need people from another section. Would be great to learn from each other. You have other competences and skills.

Breaking the silos!

It would be interesting to mix sections, to do some projects together.

Not only my class, I was pretty stacked with my team...

It will help you for the future, create synergies.

It is also about networking too. It is also to learn. To build a team.

ENTREPRENEURSHIP AS A CAREER OPTION

A career option

Some of the students were already entrepreneurs, having their first business, others were involved in the business of their parents. Almost all of them see the possibility of opening the business in the future (as they study in Business and Management School).

Needed skills to be an entrepreneur

For most of the interviewed students managing problems, problem solving is a key competence. Also how to respond towards changing markets and being adaptive. They mentioned two types of competences: soft skills like leadership, negotiation, self-confident, risk management, but also hard competences like numbers, managing budget, production of specific things you are dealing with, etc. One of the important competences/skills was curiosity, and being able to put yourself in the shoes of customers.

- You have to be self-sure, self-confident, deal with problems. When you run company you have a lot of problems,
- You need to be an adaptive, good sales person.
- Leadership, charisma, the numbers, you need to know the numbers, marketing
- Don't be afraid to take risks. You can learn from mistakes from others,
- To create a company you need a lot of money. At the beginning it is quite complicated to get this money when you are a young person.
- You need to be curious, be open, search, have orientation what is existing,

- Be able to put yourself in the head of customer to see if your product is good, or if the app will be used,

Skills through work practice

Main points mentioned by students about getting entrepreneurial competencies was practical approach. Generally speaking, they like to learn by doing. It could be their own project, school project or internship, but they found out that for them the best way of learning is by doing, to have experience.

- During stage in company. It is the best way to learn.
- You should do your own project, even if it is on Instagram. Try to build a website, sell one item. I think that you can learn more by failing than in school. You need to try, you will learn. Learn from the mistakes

The most important thing for students is the possibility to learn, to be involved in concrete projects, get tasks and learn by doing things. Few of them mentioned that unfortunately stages (internship) are not so efficient, because usually you are not involved in any concrete project and don't get tasks which are connected to your education (mostly it is administration job, or support). But one of the students mentioned that at this stage it is a great opportunity to observe, to learn how the boss is managing the team, how people solve problems.

"I have a student job. I work every week for them. I learn a lot. It is just a clothes shop. I don't like simple students, I need to do a job like others. I learn a lot, how to make a stock, how to talk with people, check out, operate with cash, open and close. And also the bigger thing I learned is to think like a customer. I need to go to customers, ask if they need help, guide them. If someone says no, you feel rejected, but you continue. This helps me a lot! Stage is important, the student job is really constructive!"

Stage is important to observe, how people behave, what boss is doing, how he/she is managing.

I would observe people how they are happy. How the boss treats people. I will learn from this. It is interesting to observe.

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

How to ensure the best entrepreneurial-oriented and innovative education

All of the students interviewed were happy with the school program and tools. They mentioned a few programs which are good examples of a learning approach (Jonk entrepreneur program with NGO, where they could work on their own project). They really appreciate working on concrete projects, to have a challenge which they can solve. Few of the students mentioned competition as one of the motivators. Also cooperation with external partners was mentioned as an important part of learning (programs from NGOs, presentation in the front of people from outside of school, collaboration with external players).

I think schools are doing it. Commerce and management, you have to be open to people, you have to talk, do presentations, work with a lot of people, and change groups. It is like a work life. It is a lot of teamwork

I think Jonk Entrepreneur project was great was more concrete, practical

The competition was nice too, team work. To work on something concrete, not only theoretical.

You need help from others, to reach out, to call people. You see more of the business world. In school you follow mostly students.

In my section a lot. I had to create a 50 anniversary project, I was calling people etc. It was not for real, but was a lot of stress and fun.

It was teamwork, 6 people working on it.

It will be in the entrance of ecg, there will be open concerts, events for children.

I had a lot of contacts out of schools

Presentation for people from out of the school. We are making a presentation about how you calculate revenue, and you have to present for people from out of the school. It can help you to get confidence also.

Additional comments and suggestions:

As a main resource of knowledge they mentioned the internet. Specifically a lot of them search for knowledge, information on social media, and YouTube. They see movies, clips, videos as more interactive. Important for them is also a community, where they can exchange and share knowledge (few people mentioned Facebook group). Some of them mentioned also parents as a role play from whom they learned a lot, they are observing, sometimes also they are encouraged by parents to set up own business.

Annex 6 – Befindunge vu MSS, Island

Outcomes from the group discussions with companies, MSS

Validity of the results

Vísir: One of the biggest fish companies in Iceland who are leaders in entrepreneurship in technic in the production and product development. Their goal is to use 100% of the fish they are catching and finding new products from the waste.

Yarm: Entrepreneur who was interested to make and create handcraft form Icelandic wool from scratch. Now she is selling her products worldwide.

Hjá Höllu: The company was made from an idea of a woman who was taking care of her young children at home. She was very interested in healthy food and started in her own kitchen to cook and sell to companies. Today she has two restaurants and is selling thousands of meals per day to companies.

Blue Lagoon: One of 25 wonders of the world. About 400.000 tourists (80) % to Iceland visit the Blue Lagoon. There are Spa's, restaurants and high class hotel. Also they produce a lot of products for skin care. They have a department where specialists are working on product development.

Hreyfisport: Gym and rehabilitation with focus on personal treatment and support. Also the companies are selling some equipment and products to support good health.

RATA: Supporting Start-up companies - entrepreneurs as a mentor to take steps forward and build successful companies.

These companies were chosen because they are good examples of good practice and show how one idea can become a big and successful business. Also because they are very different and give insight to the working environment in Sudurnes in Iceland.

The companies were visited one by one from the two Icelandic members of the project. We had some discussion for about one hour with the managers. The companies are located in Reykjanesbær and Grindavík.

The managers were informed about the CDTMOOC project, the purpose and outcome. We had an interview frame in English and in Icelandic and the interview was based on the frame. One was leading the conversations and one was writing notes from the interview.

BUSINESS DEVELOPMENT

Skills for entrepreneurs – existing and needed

- open minded
- the ability to work in a team
- be able to listen to others
- being able to set some goals and follow them

- time
- patient and power to research
- flexibility
- to be able to follow time schedule
- organized
- resilience
- passion
- hungry for new knowledge
- critical and creative thinking

Additional comments and suggestions:

Passion for the project is everything if you are expecting good results.

Listen and learn from people who have experience and knowledge you don't have.

To build a strong network is very important for success.

Innovation in the business development

- Give people time and space
- New product
- Support and motivations
- New technology
- Education

Additional comments and suggestions:

Companies can be supportive and help to build a strong network.

Be open for new ideas, listen to the staff, build trust and motivate creative thinking.

Follow the innovation in your business sector - see what others are doing.

UNIVERSITY-BUSINESS COLLABORATION

Collaboration with education providers and students

- Culture of education in the companies
- University in marketing, human resource, biotechnology etc. internship

Additional comments and suggestions:

- important to have cooperation and collaborations with schools/Universities to empower our grate staff and it can even create new ideas and products.

Students' entrepreneurialism and innovativeness

- New product from fish (fish oil)
- utilization - product from fish waste.

Additional comments and suggestions:

“Not everyone needs to be the innovator. There's a threat that the innovator doesn't work for you for a long time, when he discovers something new.”

Challenges encountered

- Resilience
- Funding
- Time management
- Stress management
- Realism

Additional comments and suggestions:

“The money is not coming the first day. Please teach students resilience and realism in education for entrepreneurs”.

“It is not fair to tell students just stories about projects of very good success. They have to know also about the challenges and difficulties of being an entrepreneur. It's one of the most difficult jobs you choose”.

Threats and demand for change

- Fourth industrial revolution
- Market
- Green energy
- Informed consumers
- Digital skills
- Language skills

Additional comments and suggestions:

In the time of Fourth industrial revolutions there were a lot of changings both in work life and personal life. It gives entrepreneurs more opportunities and even challenges to come up with an idea and work it to a business opportunities.

Students must have good digital and language skills.

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

Educational support needed for business development

- Creative thinking
- How to work in a team
- Make a business plan
- Language skills
- How to build a network
- Project management
- Funding
- Understanding the market
- Good digital skills

Additional comments and suggestions:

To be able to work in a team is very important and gives the entrepreneur more possibility and the idea is more likely to succeed.

Without passion the entrepreneur is not likely to succeed. It is important in education to help people to keep the passion.

Introduction from companies and entrepreneurs in the study to tell students how it is in the “real world”.

Role of entrepreneurship and innovation in education in the next 5 years?

- Understanding
- Business development
- Product development

Additional comments and suggestions:

It is very important that students, companies and schools understand how important innovation and entrepreneurship is.

Important for companies to be able to hire staff with creative thinking and gives companies more possibility to be successful.

Outcomes from the group discussions with teachers, MSS

Validity of the results

The teachers were from 3 schools and are teaching and motivating young people as a part of the curriculum, people that buy their course because they have some idea to follow or people from Directorate of labour. The length of the courses was 40 – 80 hours.

Rata is a private school who are mainly teaching and supporting “start-up” projects.

MSS Lifelong learning centre

FS College of Sudurnes

We had some meetings with each of the teachers and discussed the project and introduced them to CDTMOOC. The teachers were all interested in the project and wanted to follow the outcome later. In all the discussions the teachers mentioned how important it is to find and support students that have interest and passion for entrepreneurship and innovation. It is important to start early in elementary schools to stimulate creative thinking.

General findings

All of the teachers are using positive motivation and building confidence with the students. Three of them mentioned it is important to tell students about how it is in the “real world”. Many mistakes make good results and it takes time and effort to manage. The teacher from RATA talked also about the need for support and education for funding.

ENTREPRENEURSHIP AND INNOVATION IN TEACHING

Innovation in teaching

- show the students many good ideas.
- Create a good atmosphere
- Workshops
- Brainstorming
- Teamwork
- Use the internet (Google, YouTube) to find
- Enjoy the program
- Building network
- Help them to open the mind and look inside.

Additional comments and suggestions:

“Inform students about the power of patience”.

“Important to have conversations with others about innovation and entrepreneurship”.

Feedback

- From the students
- No discipline problems
- Students survey
- Students achievements

Additional comments and suggestions:

All of the teachers said a positive atmosphere and support is necessary for creative thinking.

ENTREPRENEURSHIP AND INNOVATION AMONG STUDENTS

Students' entrepreneurialism and innovativeness

- very creative students
- interest
- Teachers' interest and passion are important.

Additional comments and suggestions:

"In the beginning I gave students grades between five and seven. Now they have eight to ten. It's the beginning of the course and in the end. We have won competitions three years in a row".

- Marel Masterpiece solutions
- University of Reykjavík
- BOXID: competition

Challenges encountered

- to have an idea
- put an idea into practice - start the project
- Tax regulations
- Their current financial status

Additional comments and suggestions:

"A teacher needs to be motivated and creative to infect students".

"Cooperation between schools and companies are important".

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

Role of entrepreneurship and innovation in education in the next 5 years?

- Teachers have to learn and follow new technique and ideas in teaching
- More time for teaching Innovation and entrepreneurship in schools.
- Should be part of all the education levels

Additional comments and suggestions:

“Teachers and school administrators must understand the importance of innovation and entrepreneurship for the community”.

“Crucial element in all education”.

How to ensure the best entrepreneurial-oriented and innovative education

- More art education
- Enhancing digital skills
- Collaboration with companies
- Flexibility
- Increased teacher retraining

Additional comments and suggestions:

“Everyone agreed that too many people were teaching in these studies without having good experience and education to do so”.

“The teacher must have a passion also about innovation and entrepreneurship”.

Outcomes from the group discussions with students, MSS

Validity of the results

Two focus groups: Group of five people from MSS and group of 5 people from College of Sudurnes (FS).

The students from MSS were finishing an Entrepreneurs course for three weeks and the students from FS were in course learning Innovation and entrepreneurship.

The students were informed about the CDT MOOC project, the purpose and outcome. We had an interview frame in English and in Icelandic and the interview was based on the frame.

One was leading the conversations and one was writing notes from the interview.

General findings

All the students had positive thinking about their course and were very willing to inform about their experience. Seven of them had an idea for entrepreneurship before the course but three students did not. The young students were interested in entrepreneurship and innovation through their class in FS as engineers, electricians or carpenters.

The MSS students were English speaking immigrants 20 years+ and the students from FS were young Icelanders (17-19 years).

ENTREPRENEURSHIP AND INNOVATION IN STUDIES

Skills for entrepreneurs

- Curiosity
- Design thinking
- Creative
- Initiative
- Education in the field the students are interested
- Interest
- Communications skills
- Solution oriented

Additional comments and suggestions:

Support from family and friends are important.

To be able to ask questions to people that have knowledge and experience is important.

Important to be patient and have skills to learn from mistakes.

Entrepreneurial institution

- Miðstöð símenntunar á Suðurensjum
- Fjölbrautaskóli Suðurnesja

Additional comments and suggestions:

“I spend many hours researching the internet using Google and YouTube”.

ENTREPRENEURSHIP AS A CAREER OPTION

Knowledge of the industry

- Through work
- Rehearsing myself on the internet
- Asking questions
- Through education

Additional comments and suggestions:

“I like to go to companies or meet entrepreneurs to ask questions and learn”.

A career option

- Have own company
- Manager in good company
- Have many possibilities in life and work

- Follow my passion

Additional comments and suggestions:

“In my country (Poland) I have not had the opportunity to follow my dream to be an entrepreneur”.

Needed skills to be an entrepreneur

- Interest
- Education
- understand my self
- Good confidence
- Marketing skill
- Positive attitude
- Passion
- Language skills

Additional comments and suggestions:

“The keynote is to have an interest, knowledge and to be good in communications”.

Skills through work practice

- Knowledge
- opportunity to ask questions
- “learning by doing”

Additional comments and suggestions:

Important to have experience from the work life.

ENTREPRENEURSHIP EDUCATION IN THE FUTURE

Role of entrepreneurship and innovation in education in the next 5 years?

- Very important to grow as a country in the 21th century.
- More and more technical and digital things around us.
- More flexibility in education and work life.

Additional comments and suggestions:

It is good for everybody to learn Innovations and entrepreneurship from childhood.

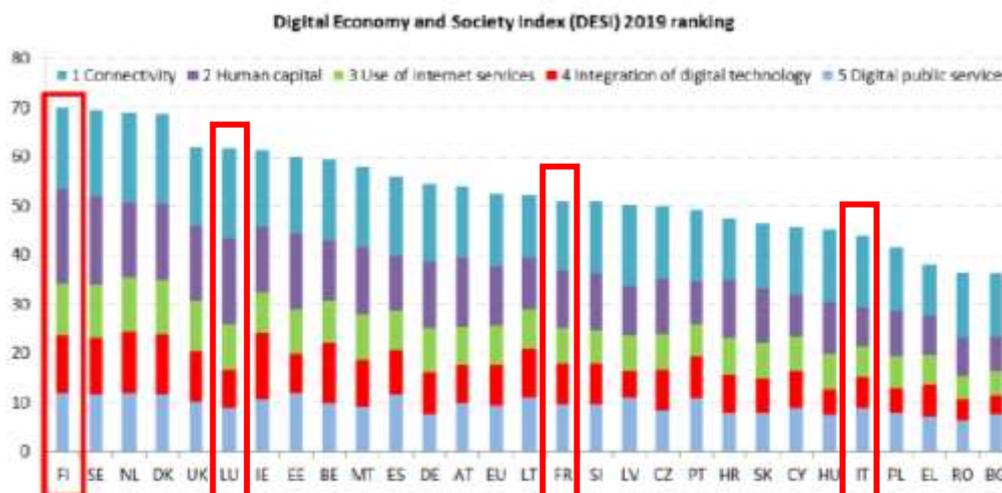
How to ensure the best entrepreneurial-oriented and innovative education

- Teach creative thinking from the beginning in schools.
- “Teach the teachers”.
- Cooperation with companies.

Additional comments and suggestions:

“Sometimes it is difficult to follow your dream and it usually takes time, but it is worth it”.

Annex 7 – CDTMOOC Partnerlänner Digital Wirtschaft a Gesellschaft Index (DESI) 2019 Ranking



source: Digital Economy and Society Index (DESI), 2019 Country Report, Finland

The European Commission is monitoring Member States' digital competitiveness through the Digital Economy and Society Index (DESI) reports. The monitoring has been proceeded since 2015. The DESI country reports combine quantitative evidence from the DESI indicators across five dimensions of the index with country-specific policy insights and best practices. The thematic chapters present a European-level analysis of broadband connectivity, digital skills, use of the internet, digitalisation of businesses, digital public services, the ICT sector and its R&D spending, and Member States' use of Horizon 2020 funds.

Finland ranks first out of the 28 EU Member States with a score of 69.9 in the European Commission's Digital Economy and Society Index (DESI) 2019. Its overall score largely surpasses the EU average of 52.5, allowing Finland, for the first time, to become the EU digital leader. Its human capital is one of its strongest competitive advantages where 76 % of the population have basic or above basic digital skills, a long way above the EU average (57 %).

Luxembourg ranks 6th out of the 28 EU Member States in the European Commission Digital Economy and Society Index (DESI) 2019. The country ranks third in Human capital, improving from the previous year. The percentage of individuals with at least basic digital and software skills was well above EU average in 2017 (ranked first), while the share of ICT specialist as a percentage of total employment has increased to 5 % and is well above the EU average of 3.7 %.

France ranks 15th out of the 28 EU Member States in the European Commission's Digital Economy and Society Index (DESI) 2019. France's highest rankings are in the areas of Human capital (driven by relatively high shares of women ICT specialists and digital skills levels), and Integration of digital technology (as a relatively high proportion of French companies share information electronically or make use of big data analysis). Over the past year, France has adopted a number of important initiatives to support digitalization, including the country's plan to fight digital exclusion ("Plan National pour un Numérique Inclusif"), funding for digital-related training under its dedicated investment plan ('Plan d'investissement dans les compétences'), a new national initiative for the

digital transformation of SMEs and microenterprises ('France Num'), a national strategy for artificial intelligence, and several projects to modernise public services through digitalisation.

Italy ranks 24th out of the 28 EU Member States in the European Commission Digital Economy and Society Index (DESI) 2019. Italy performs relatively well as regards Connectivity and Digital public services. However, three out of ten people are not regular internet users yet, and more than half of the population still lacks basic digital skills. This shortfall in digital skills is also reflected in low use of online services. On the other hand, Italian enterprises score better on the use of electronic information-sharing software and social media.

Iceland does not appear on the chart and the latest information date back from 2015. At that time, the country was performing above the European Average in Connectivity and Use of Internet, while the Integration of Digital Technology and Human Capital were within the European average. Iceland was performing below the European average in term of Digital Public Services.

IX. Interessant Links fir ze konsultéieren

- [Key findings from the 2019/2020 GEM Italy Report](#)
- [Entrepreneurship in Luxembourg: positive perceptions and fear of failure](#)
- [Entrepreneurship Education Podcast by USASBE](#)

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Shaping Europe's digital future, Policy, Countries' performance in digitisation <https://ec.europa.eu/digital-single-market/en/countries-performance-digitisation>

Teaching Entrepreneurship blog by teachers in entrepreneurship and co-founded by Doan Winkel, President of USASBE <https://www.teachingentrepreneurship.org/>

 <p>Co-funded by the Erasmus+ Programme of the European Union</p>	<p>Dëse Projet gëtt vun der Europäescher Kommissioun finanziert.</p> <p>Dës Verëffentlechung reflektéiert d'Meenungen nëmmen vum Autor, an d'Kommissioun / National Agencen kënnen net verantwortlech gemaach gi fir all Gebrauch déi vun der Informatioun dra gemaach ka ginn.</p>
	<p>De "Intellektuellen Output 1 EVIDENCE GATHERING RAPPORT" gouf ënner Erasmus + KA2 Strategesch Partnerschaft fir Héichschoulprojet "CDTMOOC" (Projet Nr. 2019-1-FI01-KA203-060718) entwéckelt an et gëtt ënner Creative Commons lizenziert.</p> <p>Attribution-NonCommercial-ShareAlike 4.0 International License.</p>