DEVELOPMENT OF GRADUATE EMPLOYABILITY SKILLS WITH REGARDS TO DREAM JOB USING MOBILE APP

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Abstract

The educational journey of every student in the university is initiated with the ambition to achieve the best possible role in the field of their interest, which not only become their ultimate goal and what we call a “dream job”. To accomplish this target, students plan their academic journey so that they can achieve the best possible grades in academic assessments, to exhibit their knowledge and expertise within their field. The academic journey of students furnishes them with domain knowledge of the field and different academic tasks like presentations, projects, workshops, group work, etc also aim to equip students with another set of skills known as employability skills among employers. However, in the limelight of gaining domain-specific skills, the employability skills either remain unacknowledged or underdeveloped. It is seldomly realized that the lack of these employability skills sometimes becomes a barrier for students to achieve their dream job, despite being good at domain-specific skills.

In this paper, we aim to present a mobile application prototype that is intended to help students acknowledge the presence of these skills through the self-reflection process on their experiences and support students to understand the need and requirements of their dream job. This project is supported by the ERASMUS+ program.

Keywords: Global Employability Skills, dream job, mobile application, skill development.

1 INTRODUCTION

The educational journey of every student in the university starts with an aspiration to achieve the best possible role in their field of study after graduation, what we have termed the “dream job”. To accomplish this target, students plan their academic journey so that they can achieve the best possible grades in academic assessments, to exhibit their knowledge and expertise within their field. The academic journey of students not only equips them with domain knowledge of the field but also with a set of attitudes, values and skills known as employability skills in the world of work (WoW). Research has confirmed that in the interest of gaining domain-specific skills, the employability skills either remain unacknowledged or under-developed [2]. Due to the highly competitive academic journey of striving for an equally competitive labour market, it is seldom realized that the lack of these employability skills often prevents the students from achieving their dream job, despite being good at domain-specific skills.

In this paper, we present a work in progress (a prototype of an e-learning platform) that is intended to help students acknowledge the significance of these skills through the process of self-reflection and goal setting and provide them with a skills development roadmap to recognize the needs of their aspired careers i.e., their dream job.

Currently, in its evaluation phase, the Graduate Employability Skills application (GES App) has two primary components that are aimed at facilitating the transition of fresh graduates from the university to the world of work. The first component, utilizing the self-determined learning model of instruction (SDLMI), facilitates the self-reflection process of a student, encouraging them to assess their skills throughout their university journey. The second component, the concept of ‘dream job’ using Locke’s goal-setting theory of motivation, assists the students to analyse their existing skills profile with the skill profile required for their dream job [19]. The comparison of the two skill profiles would enable students to acknowledge the gap that aims to stimulate skills recognition, goal setting for skills improvement and career development learning behaviour among them. The learning resources integrated within the app are intended to support students’ employability development and skills improvement journey systematically.

This article begins by reviewing the goal-setting theory which elaborates on different approaches to goal setting and its impact on achieving goals (which is building lifelong career management skills for this study). Utilizing a self-determined learning model of instruction (SDLMI) and Locke’s goal-setting theory of motivation, this research presents an e-learning tool to improve the graduate employability of

university students that utilizes the effectiveness of mobile technology and its convenience enabling learning possible irrespective of time and place.

2 BACKGROUND

As elaborated in [1], the self-determined learning model of instruction (SDLMI), has been proven an effective intervention. Although more studies have utilized the intervention for students with intellectual disabilities, scholars have advocated its wider adoption in teaching and learning practice, as well as in career development. “Being self-determined is about acting as the causal agent in one’s life.” ([3], [4]) i.e., having the enabling skills and attitudes that make or cause things to happen in one’s life. Therefore this heutagogical approach encourages not only the development of the learner’s competencies but also the learner’s capability and capacity to learn and goal setting plays a crucial role in the success of this approach ([3], [5], [6]).

Self-determined actions include choice-making, decision-making, problem-solving, goal setting and attainment, planning, self-management, self-advocacy, self-awareness, and self-knowledge. While the elements of self-management, self-awareness and self-knowledge have been discussed in [1]. Locke’s theory of goal setting for motivation ([19], [20]) is being utilized here for effective goal setting which is another significant element of the SDLMI.

This project has methodically analysed the academic, student and employers’ perspectives to design and develop an employability development App (GES-App) that aims to encourage the lifelong ability of ‘learning to learn through heutagogical approaches. Four universities from Scotland, Norway, Greece, and Poland partnered to design and develop a digital application for career development learning (CDL) and employability management. Currently, in its piloting phase, the digital application is being tested and evaluated by the graduate students and career advisors at the four participating universities. While it is expected that the findings would become available by the time of this conference, this article begins by outlining Locke’s goal-setting theory, and its different approaches to effective goal setting and reviews its impact on career aspirations. Followed by the research methodology, the design and development of GES-App’s learning component of ‘dream job’ in relevance to the goal-setting theory, the paper concludes with the upcoming course of action and its implications for the stakeholders.

Figure 1: SDLMI [5] Locke's Goal-setting theory of motivation

2.1 Career Aspirations and Success

Psychological Impact of career aspirations and its prognostic significance has been confirmed by literature [7]. Students having proactive career behaviours i.e. career planning, skills development, career consultation and network building show stronger commitment to their career goals ([8], [11]) which has a statistically significant relationship with career success ([11], [13])**.** This section elaborates on how having career aspirations and then setting a goal to pursue them encourages career development learning (CDL).

2.2 Goal Setting Theory of Motivation

Defining Goals is a motivational process of establishing clear and realistic milestones, or objectives. The two primary forms of goal orientations include (i) Task-focused goal orientation (ii) Performance Focused goal Orientation.

Locke and Latham's goal setting theory of motivation primarily focuses on task focused goal orientation where the intrinsic focus is on learning and improving, also referred as learning or mastery goal. In the context of Higher Education, this also aligns well with the career development learning (CDL) that is described as a process of "… helping students to acquire knowledge, concepts, skills and attitudes which will equip them to manage their careers, i.e., their lifelong progression in learning and work ([11], [14]) confirmed a significant relationship between goal setting and student's achievement by empirically assessing a language learning portfolio that focused on student self-assessment, goal setting, and collection of evidence which shares similar goal setting mechanics to the GES-App.

The goal setting theory of motivation further defines the key approaches to effective goal setting i.e., the goal should be clear and specific, should be challenging enough without being unrealistic, should be achievable, have a feedback system in place and the person has to be committed to the goal.

2.3 Dream Job

Adolescents in their high schools start developing aspirations for the career they want to opt, and the university serves as the first step towards materializing those aspirations. These aspirations not only shape adult career development but also adult identities and well-being (Ashby and Schoon 2020). In-depth review of career and employability literature have confirmed the difference between objective employability and perceived employability([15], [17]) which is driven by internal and external factors i.e. Self-belief, University ranking, field of study and the state of external labour market. To prepare students in advance and to give them a better insight into the labour market relevant to their field of study, the 'dream job' includes an inventory of 15 fields of study, 65 roles and its relevant employability skills, attitudes, and values necessary for the job.

Table 1: Summarizes how the concept encourages effective goal setting as shown in Figure 1.

	Dream Job
Clear	Customized goal highlighting the exact role and its related skills inventory and skills enhancement resources
Challenging	Comprehensive list of skills categorized across organizational skills, communication and interpersonal Skills, Personal values and attitudes, generic workplace skills to clarify the areas needing improvement
Commitment	An extensive record of their experiences, learnt skills and self-reflection logs
Feedback	Progress bar to visually show the gap between their existing skills and the skills associated to the aspired job
Complexity	Comprehensive list of Resources (audio, video, textual) to relevant skills enhancement establishing the realistic achievability of the skills with an intrinsic focus on learning and growth

3 METHODOLOGY

The Design Thinking methodology [22] has been adopted to facilitate the development process of the project. The 5 stages of design thinking process are adopted that enabled the ideation of Dream job concept through empathise phase followed by define phase initially. The conceptual framework acquired through ideation is realized into mobile application design in Figma which is tested through development of working mobile application in Unity and then being evaluated with users.

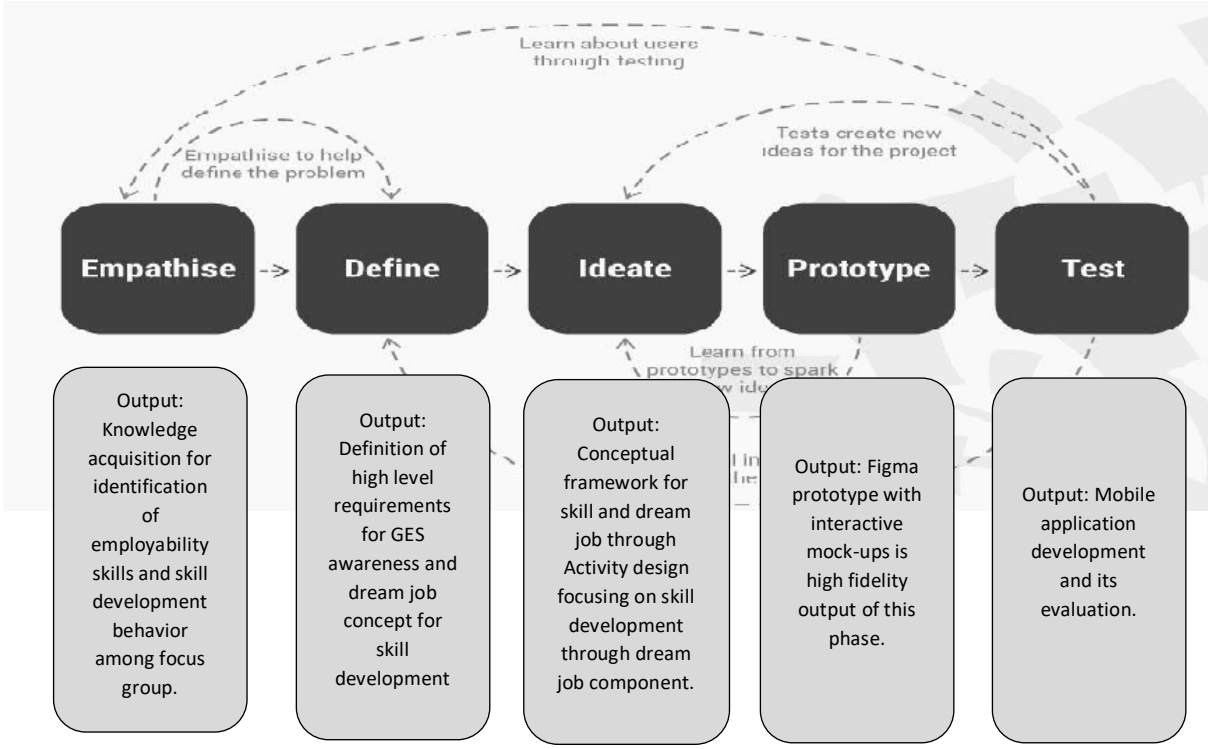

Figure 2: Stages in Design Thinking Process by Hasso-Plattner Institute of Design at Stanford and their outputs

The 5 stages of design thinking process resulted in output that offers input information for the subsequent phase as shown in Figure 2. Because of the iterative nature of design thinking process, the output of every phase is reviewed in the light of output of next phase that enabled the concise conceptualisation and realisation of the dream job framework to be aligned with the aims of pursuing career development learning.

The outputs of each phase are achieved in the following manner:

- **Empathise**: In this phase the interviews are conducted using Focus group methodology where participants are identified based on stratified sampling. The interviews are analysed identifying the global employability skills and the perception among different users. After the prototyping of process of reflections and self-assessment for the acquired GES the need of skill development process is highlighted, and concept of dream job is evolved. The interviews are again analysed to identify the motivation for dream job among students for utilising it for CDL process.
- **Define:** The Information acquired in empathise phase is processed to define the need to skill reflection and assessment process that leads to the user motivation for learning skills in the light of their dream job.
- **Ideate:** The brainstorming sessions of project partners leads to the framework of dream job concept in the light of conceptual framework of Global Employability Skills [23].
- **Prototype**: In the following phase the dream job framework is realised into high fidelity GES App design in Figma where the dream job concept is visualised in terms of skills along with activity design of accessing resources to support skill development among users.
- **Testing:** is the phase of the methodology where conceptual framework and design of activity is developed in mobile application and evaluated on the basis of feedback provided by different users from focus group.

The integrated agile development of the mobile app along with the rapid prototyping approach ensured the usability of the application while improvising the user experience. The activity design is iteratively evaluated against framework for enhanced efficiency.

4 CONCEPTUAL STRUCTURE AND APP DESIGN

The output acquired from the empathise and define phase of methodology provided input information for the structure of the dream job component, of the skill conceptual framework [23].

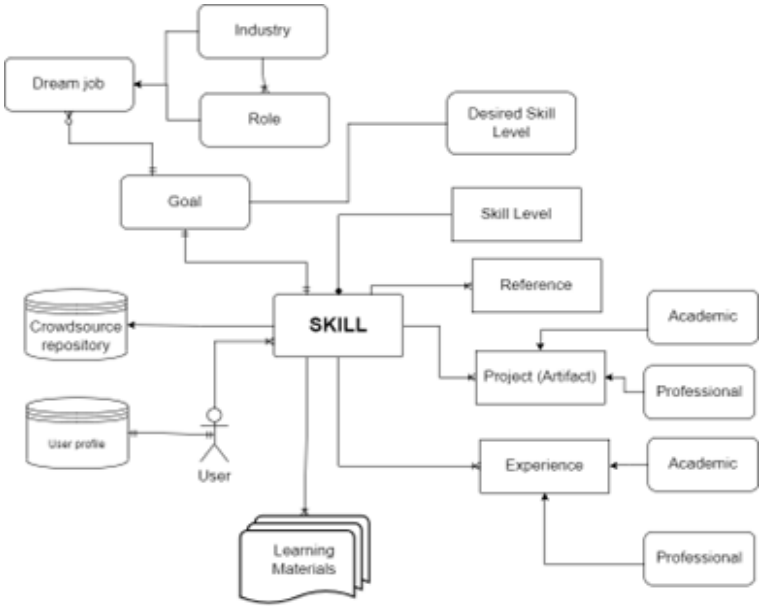

Figure 3: Conceptual framework of Skill integrated with dream job components

In the Figure 3 above, three components of Reference, Artifact and Experience has been used to evidence the skill however, in the light of Goal setting theory of motivation [9], the goal component has been used to provoke the skill development behaviour. The goal component is defined in terms of desired skill level of user. However, to enable users to envision goals clearly, the component of the dream job is integrated that reflects the user career behaviour directly. The precision of the goals is achieved with narrowing down of career path further in terms of preferred industry and desired role.

The activities that are designed in using Figma focus on facilitating user to identify goals with help of defining dream job and evaluating the skill set required by dream job with respect to present skill set of users. The following assessment of user profile leads to the knowledge of skill gap and support skill development with help of learning resources provided.

4.1 Goals Identification

The process of career development is initiated with recording the goals within the profile of the user. With the help of this activity user can not only define skills they want to acquire as the goals in the profile but can also monitor their progress to achieve their goals using learning resources as shown in Figure 4.

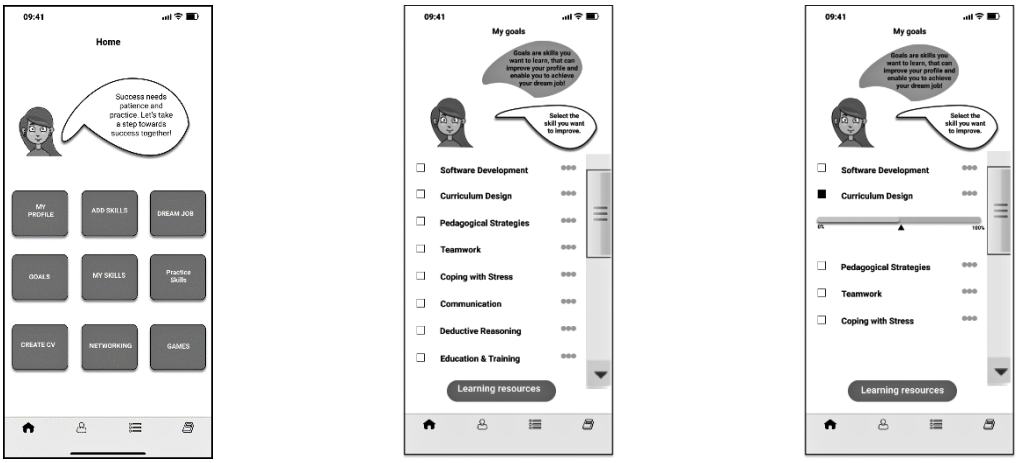

Figure 4: Adding goal to user profile where a) shows the options available for users for adding goals to profile: b) showing goals added to user profile: c) shows user progress for goal completion

4.2 Dream job activity

Dream job activity aims to promote skill development behaviour in the user while focusing on the user career orientation and future ambitions. The sub-activities identified to support the concept are shown in Figure 5, includes defining of the dream job with respect to industry and role, searching for skill required to achieve the dream job, identification of skill gap by comparing existing skill profile and required skill profile and also adding skills to goals for skill profile improvement for achieving dream job.

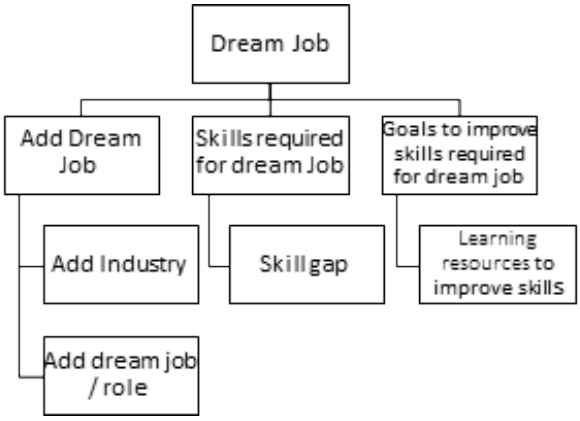

Figure 5: Dream job activity and supporting sub-activities

4.3 Add or Create dream job

This sub-activity allows user to add dream job their profile and user can do it in two ways. One user can search the dream job from the crowdsource repository as used in skill framework [23] or can create one by defining the industry and particular role the user wants to acquire within that industry as shown in Figure 6 part a. Once the job is defined the application enables user to save it within the list of dream jobs in user profile or user can search for the skills relevant to the dream job.

Figure 6: Adding dream job activity showing a) Options available to add dream job; b) creating a dream job c) defining dream job in terms of industry and role

4.4 Skills with respect to dream jobs

Once the dream job is added, the application design allows user to search for relevant skills to the dream job as shown in Figure 7 part a. The skill profile of user can be assessed against the skill profile recommended for the dream job as shown in Figure 7 part b. The application enable user to evaluate the acquired skills and skills user need to acquire as shown in Figure 7 part c.

Figure 7: Dream job activity where
a) shows the skills relevant to dream job when dream job is defined by user; b) skill profile assessment of user against the skill profile required for dream job, c) assessment of skills

4.5 Adding skills to goals

With the dream job activity, the user will be provided with the list of skills relevant to the dream job defined. User can add these skills to the goals, to learn and practice with aim to enhance the competitiveness of the profile for dream job. The list of the skills saved as goals can be accessed for learning later as well as shown in Figure 8.

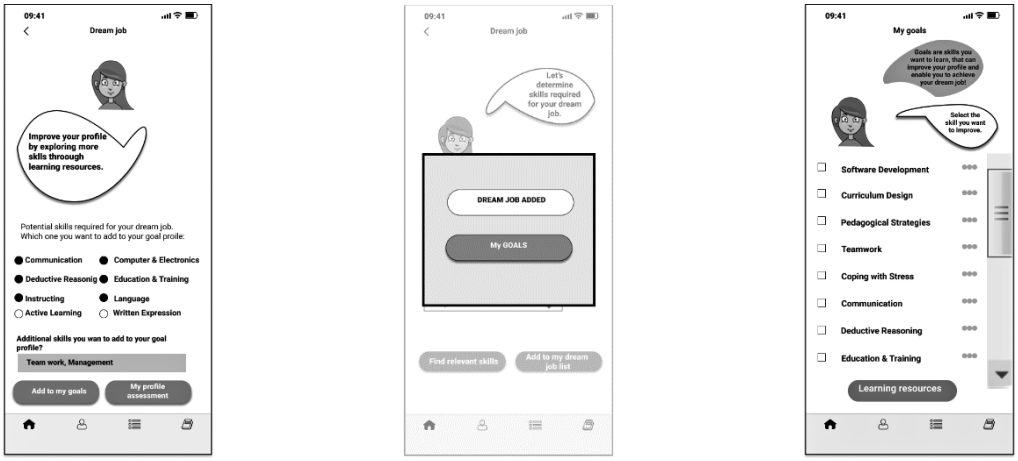

Figure 8: Adding dream job skills to the goals where
a) shows the skills set required for dream job b) shows option for user to select skills and add to goals: c) shows the skills added to the goals

Along with the goals, the user can also save the list of dream jobs along with relevant skills in dream job profile as shown in Figure 9. The dream job saved enable users to search for relevant skills in terms of knowledge specific skills and employability skills. Users can choose to add skills to goals from dream job list any time as per preference.

Figure 9: Add dream jobs where
a) shows option to view the list of dream jobs saved by the user: b) shows the list of dream jobs and skills in terms of domain specific and employability skills: c) shows option to add skills to goals

The flexibility and accessibility of the activity design enable skill development among user at their personal pace while engaging the user interest from the perspective of their ambitions.

5 DISCUSSION & CONCLUSION

It has been established through research that student interest for acquiring skills relevant to their domain overshadow the need of acquisition of employability skills [2]. However, the realization dawns when students and job seekers steps into the market targeting their dream job and realizes the competitive requirements of labour market and significance of employability skills along with domain specific skills. In the light of SDLMI (Self-determined learning model of instruction) the student has been encouraged to self-reflect and assess their skill profile that has been developed as the first part of the project [23]. The dream job concept is evolved and integrated in the project under the Goal setting theory of motivation by Locke [19] that incorporated the concept of setting goals to attain dream job with regard to skill profile defined by user through reflection and self-assessment process and skill profile required for dream job. The evaluation by app acknowledges students of the skill gap that motivates the skill development among them.

The different focus groups are analysed for the requirement analysis of the project that enabled the design and development of different components of GES App. Different activities in the project are designed focusing on the student and employers' perspective for global employability skills with aim to enhance the awareness and to encourage skill learning behaviour. User skill profile is defined through reflection and self-assessment process enable the student to comprehend what they have, and skill profile required for dream job achieve with the help of defining dream job for students enable them to understand what they may need to have as per labour market requirements. The comparison determines the skill gap that foster the student interest in setting goals that can be achieved with help of guiding students to learning resources available.

The activities designed using Figma are developed as mobile application functionalities using Unity. However, more activities are being designed in the light of skill framework as shown in Figure 3 that enable users to practice skills, support employment readiness and allow users networking for continuous learning. However, the project is still under evaluation process thus lacks user evaluation at full-scale. As the result of some formative evaluation that provided feedback for activity design and user interface design. The full-scale evaluation and testing of the mobile application activities is the next step of the project with help of different users from project participant countries.

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REFERENCES

[1] Graduate employability learning through self-determined learning model of instruction (sdlmi) driven digital app - IATED digital library

[2] Brooks R, Everett G. Post-graduation reflections on the value of a degree. British Educational Research Journal. 2009 Jun;35(3):333–49. '

[3] Hagiwara M, Shogren K, Leko M. Reviewing Research on the Self-Determined Learning Model of Instruction: Mapping the Terrain and Charting a Course to Promote Adoption and Use. Advances in Neurodevelopmental Disorders Springer Science and Business Media B.V.; Mar 1, 2017, p. 3–13.

[4] Shogren KA, Raley SK, Burke K. The Self-Determined Learning Model of Instruction Teacher's Guide. 2019.

[5] Fearon C, van Vuuren W, McLaughlin H, Nachmias S. Graduate employability, skills development, and the UK's Universities Business Challenge competition: a self-determined learning perspective. Studies in Higher Education. 2020 Jun 2;45(6):1280–97.

[6] Blaschke LM. Heutagogy and lifelong learning: A review of heutagogical practice and self-determined learning. Vol. 13, International Review of Research in Open and Distance Learning. 2012. p. 56–71.

[7] Hoff KA, Van Egdom D, Napolitano CM, Hanna A, Rounds J. Dream jobs and employment realities: How adolescents' career aspirations relate to labor demands and automation risks. Journal of Career Assessment. Career aspirations and employment realities 2 Dream Jobs and Employment Realities: How Adolescents' Career Aspirations Compare to Labor Demands and Automation Risks. 2021.

[8] Clements AJ, Kamau C. Understanding students' motivation towards proactive career behaviours through goal-setting theory and the job demands–resources model. Studies in Higher Education. 2018 Dec 2;43(12):2279–93.

[9] Greco LM Kraimer, ML. Goal setting in the Career Management Process: An Identity Theory Perspective. Journal of Applied Psychology. 2020.

[10] Locke EA. Toward a theory of task motivation and incentives. Organizational Behavior and Human Performance. 1968 May 1;3(2):157–89.

[11] Moeller AJ, Theiler JM, Wu C. Goal Setting and Student Achievement: A Longitudinal Study. Modern Language Journal. 2012 Jun;96(2):153–69.

[12] Al-Bahrani M, Abu Shindi Y, Allawati S, Bakkar B. A path analysis of effects of the career locus of control dimensions and career decision self-efficacy on career aspiration. International Journal of Adolescence and Youth. 2021 Jan 1;26(1):367–75.

[13] Gbadamosi G, Evans C, Richardson M, Ridolfo M. Employability, and students' part-time work in the UK: Does self-efficacy and career aspiration matter? British Educational Research Journal. 2015 Dec 1;41(6):1086–107.

[14] Watts AG. Career development learning and employability European Lifelong Guidance Policy Network, ELGPN View project International Centre for Career Development and Public Policy View project.

[15] Byrne C. What determines perceived graduate employability? Exploring the effects of personal characteristics, academic achievements, and graduate skills in a survey experiment. Studies in Higher Education [Internet]. 2020; Available from: https://www.tandfonline.com/action/journalInformation?journalCode=cshe20

[16] Houben E, De Cuyper N, Kyndt E, Forrier A. Learning to Be Employable or Being Employable to Learn: The Reciprocal Relation Between Perceived Employability and Work-Related Learning. Journal of Career Development. 2021 Aug 1;48(4):443–58.

[17] Peeters ER, Akkermans J, De Cuyper N. The Only Constant Is Change? Movement Capital and Perceived Employability. Journal of Career Assessment. 2020;28(4):674–92.

[18] Vanhercke D, De Cuyper N, Peeters E, De Witte H. Defining perceived employability: A psychological approach. Personnel Review. 2014;43(4):592–605.

[19] Locke, E. A., & Latham, G. (1994). Goal-setting theory. Organizational behavior 1: Essential theories of motivation and leadership. 159–183.

[20] Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. American Psychologist, 57(9), 705–717. https://doi.org/10.1037/0003-066x.57.9.705

[21] Fredheim, L. J. (2021). *Mobile Application for Graduate Employability Skills - A proof-of-concept.* Norwegian University of Science and Technology Masters.

[22] Plattner, H., Leifer, L., & Meinel, C. (2009). *Design-thinking.* Landsberg am Lech: Mi-Fachverlag.

[23] Iqbal, M., Fredheim, L. J., Olstad, H. A., Abbas, A., Petersen, S. A. (2022). "Graduate Employability Skills development through reflection and self-assessment using a mobile app." in International Conference e-Society and Mobile Learning Proceedings, pp. 210 - 218, 2022.