"Emergency Course" During the Covid 19 Pandemic: How to Support Students' Competencies Development?

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Abstract. The competency-based learning approach is known as one of the best approaches to support the development of competencies related to the exercise of a profession. However, students' lack of experience with online learning leads us to reconsider its feasibility and effectiveness. This paper aims to understand how the adoption of the competency-based learning approach for an "emergency course" administered during the Covid 19 pandemic could support students' competencies. Students (N = 54) filled out self-report on various dimensions underlying their learning experience and the competencies targeted by the course. A qualitative research approach supported by the Similarity analysis and the Descending Hierarchical Classification was adopted to study the data collected. This contribution pointed out students' preference for synchronous over asynchronous learning and the effects of the reflexive breaks on competency-based learning.

Keywords: Competency-based learning, vocational education and training, emergency course, distance learning.

1 Introduction

With the global pandemic Covid-19, higher education has drastically modified the teaching methods and scenarios to guarantee the "pedagogical continuity" and the quality of teaching and learning [1]. Despite all efforts, the conception of "emergency courses" due to the Covid-19 did not only affect lecturers, most students were not also prepared and ready for the online learning experience.

The competency-based learning approach is known as one of the best approaches to support the development of competencies related to the exercise of a profession [2]. However, students' lack of experience in online learning leads us to reconsider the feasibility and effectiveness of this teaching approach. This explorative study allows us to identify possible scenarios adopted while implementing the competency-based approach to improve an online learning scenario and support the development of students' competencies. To set up this experience, we have chosen

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the "Professional didactics" course, which aims to train students to become instructional designers in vocational education settings.

The following sections present the study's hypothesis, the research context, the data collection procedure, and the qualitative approach adopted.

2 Literature review

2.1 Distance learning for "emergency" teaching

During the global Covid-19 crisis, the terminology of "online courses" or "distance learning" has been used as "emergency" teaching solutions to ensure a "pedagogical continuity." Teachers and trainers have developed teaching scenarios in this context by designing synchronous and asynchronous online courses [1].

The literature highlighted that synchronous learning modality helps students work methodically and regularly. Synchronous activities are well known to support online interactions and communication and create social relations between students and lecturers and between students and their peers [3]. Encouraging various similar activities to the ones provided in face-to-face learning also provides mediated interactions that can influence the development of students' transversal and disciplinary competencies [3]. However, it could also relate to some students' difficulties finding an appropriate environment to attend the course. Furthermore, the media or the digital tools used, such as laptops, cameras, headphones, and an internet connection, could not provide fluent attendance at the course.

Asynchronous courses allow students to attend lessons in a completely free spatial and time frame [4]. Asynchronous activities also allow students to process their thoughts and invite them to think critically [5]. Electronic forums are generally used to support asynchronous learning and support collaborative learning by reading other messages in response to problems [6]. Nonetheless, it could lead to social isolation (with peers and lecturers). Some students can also experience difficulties in organizing the working schedule to work autonomously and regularly [7].

It has been pointed out that the development and implementation of effective online education includes an appropriate adaptation of knowledge from a traditional to an online environment [8]. Following that understanding, it would be interesting to gather feedback from students to highlight the best teaching strategies for developing their competencies. The results would also benefit lecturers, especially in optimizing teaching strategies and monitoring their effects on students' competencies.

2.2 Competency-based learning

Mostly applied in face-to-face learning situations[9], competency-based learning consists of giving students meaningful knowledge, practices, and activities and building competencies related to the exercise of a profession [2]. It also targets the development of competencies expected by the socio-economic sector [10]. The European Commission has decided to give further support to the development of competencies during the learning period to better prepare students to work in their respective professional fields after obtaining their bachelor's or master's

degrees. Furthermore, a focus on developing transversal and disciplinary competencies would help students deal with the unprecedented social, economic, and challenges resulting from the accelerating pace of technological developments [11].

Various positive impacts of the competency-based approach on student learning, particularly in a distance learning context, have been recognized: a competency-based approach enhances student engagement in distance learning [12][9]. Moreover, along with the students' interaction and discussion with peers and instructors, the reflective phase of this approach can also be beneficial in developing self-direction in learning [13]. Along with the disciplinary competencies, these transversal competencies are helpful, first for their efficiency in learning and then later in their socio-professional environment.

Scientific works have shown that student's reflection on their activities is essential to make them aware of their learning. It can also help them to highlight the competencies they have developed [14]. On this understanding, some metacognitive activities (e.g., "reflective pauses" or "breaks") can be used to help them recognize, understand and be able to explain their learning experiences and perform self-evaluation [15].

The general objective of this contribution is to understand how the conception of an "emergency course" on the "Professional didactics" course administered during the Covid 19 pandemic could support the development of students' competencies when they are not prepared for online learning. For that, it is essential to understand students' perspectives 1) on their learning experiences in general, 2) on distance learning activities provided synchronously and asynchronously, and finally, 3) on the evolution of their competencies.

To ensure positive learning outcomes, the implementation of this approach was supported by synchronous and asynchronous learning activities. Reflexive breaks were also organized to support students' awareness of the competencies developed during the course. In sum, to answer our query, the following hypothesis were constructed: 1) The design of the studied course influenced the students' appreciation of the course; 2) The "reflexive breaks" suggested to students permitted them to develop an awareness about competencies that they have developed in the course.

3 Context of the study

Professional didactics is nowadays used as a basis of the field "adult education," "vocational education," "lifelong learning," or "professional education." The discipline aims to teach students how to analyze a professional gesture using the method by 1) describing the fundamental structure of this gesture (pragmatic concepts, difficulties, etc.) and 2) identifying the aims and learning objectives to design a structure of professional training.

For the "Professional didactic" course studied, ten lessons have been planned as follow:

- The 1st and the 2nd lessons aim to introduce students to the discipline. These two courses are asynchronous and include: 1) Videos introducing the discipline; 2) Articles on the literature; 3) two conferences; 4) Presentation of competencies targeted by the course.

- The 3rd lesson aims to answer questions for the first two lessons and explain the evaluation/test process.
- From the 4th to the 10th lessons: In the first part, the teacher gives content concerning the discipline, and in the second part of the lesson, students can present their progress and ask questions about the work they do autonomously.

4 Methods

4.1 Samples

Participants of the study were third-year undergraduate students in the Faculty of Education at the University of Haute Alsace, France. All students′ (N = 87) responses would remain confidential and anonymous. Fifty-four students followed the entire research protocol.

4.2 Instruments

At the end of the course, students were asked to fulfill a questionnaire focused on three different areas of interest (see Table 1). At three different times in the course (at the beginning, middle, and at the end of the course), students were asked to make explicit their competencies concerning the course topic to self-assess themselves. This cognitive self-assessment is called "reflexive break" in the pedagogical scenario.

Table 1. Research protocol.

Instruments' code	Description	Targets	Analysis procedures
A	Likert scale questions	Students' appreciation of the course (announced competencies, quality of resources, students' engagement)	Quantitative: Descriptive statistic
B	Open-ended questions and reflexive break	Description of students' activities and appreciation of synchronous and asynchronous activities	Qualitative: Similarity analysis and DHC
C	Likert scale questions	Students' appreciation for interaction and communication in distance learning and their use of distant learning resources (chat, forum, microphone).	Quantitative: Descriptive statistic

The answers collected from the open-ended questions were analyzed using Similarity analysis and Descending Hierarchical Classification (DHC) provided by IRAMUTEQ. The similarity analysis is particularly efficient for identifying the word co-occurrences, providing information on the word's connectivity, thus helping to determine the structure of a text corpus content [16]. As for the DHC, this method is efficient for obtaining a definitive classification and defining word clusters, which can help us understand social representation [17].

5 Results and discussion

5.1 Students' overall appreciation of the course

The lecturer regularly announced the competencies targeted and the course's objectives to ensure students' engagement and their understanding of the value of the course activities. 96,29% of students confirmed that they agreed that the competencies targeted were often and always clearly announced. As for the objective of the course, all students confirmed that the lecturer had made the objectives clear.

Regarding the technical aspects of the resources and the learning activities of the course, most of the students stated that they somewhat agreed (14.815%), agreed (31.481%), and strongly agreed (50%) that there were no technical difficulties experienced during the distance learning. Most students also somewhat agreed (33.333%), agreed (40,741%), and strongly agreed (11,111%) that the distance learning course supported them in building the targeted competencies. Only 7 students (12,963%) contradicted this statement. Students were also invited to identify their views on using the resources and activities organized for their learning. On this aspect, their insights were also divided into two poles: 3.704% of students did not agree that the resources and the activities provided during the distance learning were useful for their learning, and 94,444% agreed. When they were invited to indicate their engagement in learning, students' responses showed that 3.704% of students acknowledged that they were not involved in the course, while the rest of students somewhat agreed (18.519%), agreed (46,296%), and strongly agreed (29,630%) that they were engaged in the distance learning provided.

These findings showed that most students did not encounter technical difficulties, meaning that the format of the resources and the activities provided during the distance learning was technically appropriate for students' mastery of ICT. The scenario of the studied course was developed in a state of emergency to meet the teaching demands during the Covid 19 crisis, but students already have experience using the learning management system (LMS) such as Moodle, which was very helpful for the situation.

It is interesting to know that most students agreed that overall, the distance learning course supported them in building the targeted competencies. However, seven students (12.963%) did not agree with this statement, and two students (3.704%) did not recognize using the resources and activities provided for their learning. This may indicate that they were not all convinced that the distance learning course helped them to build the targeted competencies. Still, they did understand and appreciate the relevance and the use of the resources and activities provided for their learning. Also, the same number of students (3.704%) stated that they were not involved adequately in the course. One of them is part of the two students who stated that they did not recognize the use of the resources and activities provided for their learning. Indeed, the fact that they did not acknowledge the use of the resources and activities provided for their learning can impact their engagement in the course.

5.2 Contributions of synchronous and asynchronous distance learning activities for students

5.2.1 Synchronous distance learning activities: contributions for students' learning.

The similarity analysis (**Figure 1**) shows a sequence of 3 forms: "lecturer" (enseignant), "synchronous" (synchrone), and "classmate" (camarade). This result shows that the active form "synchronous" is related to "course" around which the forms as "exchange" (échange), "face to face" (présentiel), "learning" (apprendre), and "rhythm" (rythme) were presents, and "question" under which the forms as "to ask" (poser), "answer" (réponse), "real" (réel), and "easily" (facilement) were identified. The form "synchronous" is also related to "lecturer" in which we find the form "direct" (direct), "understand" (comprendre), "time" (temps), "follow" (suivre), and ends on forms like "talk" (parler), "contact" (contact), "moment" (moment), and "interaction" (interaction). Consequently, the relationship between students and lecturers in synchronized distance learning was appreciated by the possibility of having time and moments where they can get into interaction and direct contact that allowed the students to understand the course better. As for the form, "classmate" (camarade) is surrounded by forms that point out that the students appreciated the synchronous training modality for the possibility they had, discussed with their classmates, and notably saw them despite the distance. The similarity analyses have highlighted the value of the synchronous learning experience, notably in students' interactions with the lecturer and their classmates. This experience allowed students to have physical mediated interactions, particularly with other students, to experience similar activities to face-to-face learning and better understand the course.

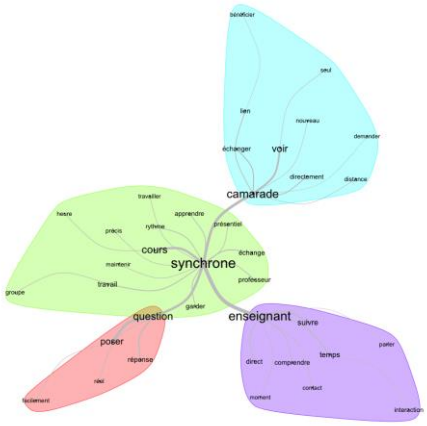

Fig. 1. Similarity analysis of synchronous learning experience using IRAMUTEQ (N = 54).

The results of DHC show that the corpus was divided into three clusters. Regarding the principal active forms for each cluster, cluster 3 (43.1%) stated the following ideas: students were being "alone" in a particular situation of "learning" because of the "distance." However, it did not prevent them from having "interaction," working "methodically," and "regularly." Furthermore, according to the verbatims, this situation can reduce the feeling of isolation and motivation for some students. Cluster 1 (29.31%) highlights the idea of "interact" with "lecturers" and

discussing with "peers" in real-time to facilitate learning, and cluster 2 (27.59%) points out notably the “échanges” students can get into during the “synchronous” “learning” “time." These findings suggest that the "synchronous" teaching modality is seen as potentially beneficial to exchanges and that this modality calls upon the particularities of face-to-face teaching and learning experience.

5.2.2 Asynchronous distance learning activities: contributions for students’ learning.

The similarity analysis (**Figure 2**) shows a sequence of 4 forms: “lecturer” (enseignant), “asynchronous” (asynchrone), “time” (temps), and “course” (cours). This result shows that the active form “asynchronous” was related to forms such as “to organize” (organiser), "question," and "to ask" (poser). The similarity analysis also pointed out that "asynchronous" was related to “lecturer” around which the forms as "classmate" (camarade), “look” (voir), "to exchange" (échanger), and “email” (mail) were compiled. It also shows that “asynchronous” was related to "time" (temps) around which the form "to work" (travailler) was present.

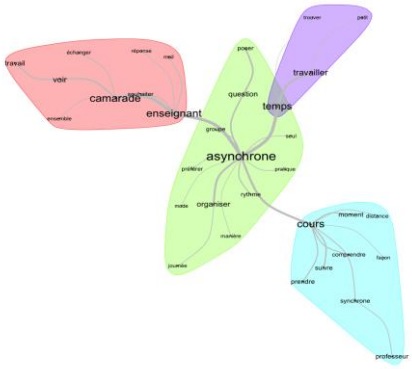

Fig. 2. Similarity analysis of asynchronous learning experience using IRAMUTEQ (N = 54).

The results of DHC show that the corpus was divided into three clusters. According to the principal active forms for each cluster, cluster 1 (27.4%) represents students’ disfavor for asynchronous learning. However, cluster 2 (33.3%) highlights the idea of having an "autonomy" in terms of "organization" of their individual "learning" "time." As for cluster 3 (39.2%), students also highlighted the benefit of asynchronous learning for the “organization” of group work. These findings suggest that the "asynchronous" teaching modality was seen as less beneficial for exchanges and creating social relations between students and lecturers. However, it gave time to organize a time to work and to learn.

5.2.3 What competencies do students report having been targeted by the course?

The similarity analysis (**Figure 3**) shows a sequence of 6 forms: “Vocational” (Professionnel), “gesture” (geste), "didactique" (didactic), “training” (formation), “activity” (activité), and “prescribed” (prescrire). This result shows that the active form “vocational” was mainly related to "gesture," "didactic," and "training." The similarity analysis also pointed out that "vocational" was located around the form "to observe" and "methods" (méthode). The form “gesture” was

related to "analysis" and "observation," as for "training," it was located around the form "module" and "objective".

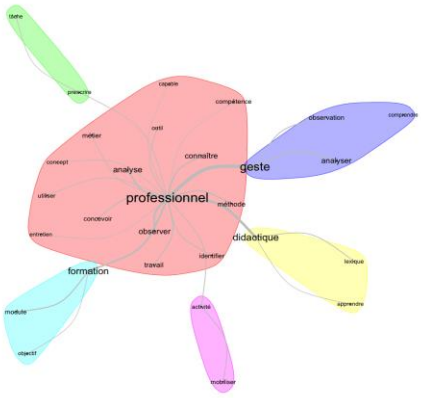

Fig. 3. Similarity analysis of competencies targeted using IRAMUTEQ (N = 54).

The results of DHC showed that the corpus was divided into four clusters. The principal active forms for each cluster pointed that cluster 2 (26.2%) represents methodological competencies, and cluster 4 (21,4%) indicated students' knowledge of specific vocational didactics' vocabularies. As for cluster 1 (23.8%), it is indicated that students assumed and could identify principal competencies targeted on vocational didactics course, and cluster 3 (28.6%) compiled students' statements on principal competencies targeted, notably of all that concerns tools such as the survey guide, interview guide, etc. These findings suggest that students can identify the competencies targeted by the course. Additionally, they could also use specific vocabulary and detail the tools and notions learned.

5.3 Students' overall appreciation for interaction and communication in distance learning

The lecturer provided a discussion forum and synchronous discussion sessions via chat or verbally to ensure, first and foremost, students' interactions with the lecturer and other students, as well as their active participation in the online course. 90.742% of students confirmed the lecturer's description by stating that he/she indeed organized and/or facilitated discussions on the online forum or during synchronous learning.

Most students (61,111%) confirmed that they were able to express themselves (emotions, humor) through chat in an online learning context, while the rest of the students somewhat disagreed (18,519%), disagreed (9,259%), and strongly disagreed (7,407%). As for their feelings about posting questions on the course forum or during the distance learning course (on chat/live video), 62,96% confirmed that they were comfortable doing such activities. The rest somewhat disagreed (16,6679%), disagreed (14,815%). Only one student stated that it was extremely not the case.

Regarding the questions that other students posted in the discussion forum or during online discussion sessions, which took place verbally, 88,60% of students agreed that both helped learn the course content. 94,445% appreciate the lecturer's reactivity during the distance learning

course, both in synchronous and asynchronous mode. All students who have completed the questionnaire reported that the lecturer always responded to requests/questions by email or on the forum in a timely manner.

These findings showed that students highly appreciated the lecturer's engagement and reactivity to ensure the online course's interaction and its continuity. It is also good to note that students also assumed the use of discussion forums for their learning. However, although most students agreed that they could express themselves and comfortably used online discussion forums, nearly half of them disagreed with these statements. This could be explained by the fact that students were not used to distance learning. The results of our second instrument, which pointed out that students did not see the "asynchronous" teaching modality as beneficial for exchanges and for creating social relations between them and the lecturer, also provides some elements of an answer.

The results showed that the type of digital media used to provide online learning activities must be wisely chosen by considering students' mastery of ICT. This study highlighted the effects of teaching modalities (synchronous and asynchronous learning) as well as the competency-based learning approach on students' appreciation of the course, which confirms our first hypothesis of the study. First, this contribution pointed out that students prefer synchronous over asynchronous learning when it comes to online interactions and social relations. This could be explained by the fact that synchronous learning offers a form of learning that calls upon the particularities of the face-to-face teaching and learning experience to which students are used [3]. As for asynchronous learning, students' views are divided. Some of them confirm one benefit of this learning modality pointed out by the scientific literature [4]: they may have a freedom of working time. However, some others agreed that it led to isolation, and felt difficulties working regularly and having challenges in organizing the learning time [7].

The second hypothesis of the study stated that the "reflexive breaks" suggested students might permit them to develop an awareness about competencies they have developed during and thanks to the course. The findings of this study confirmed this hypothesis by pointing out that students are indeed capable of identifying the competencies targeted by the course using specific vocabulary and giving some further detail about the tools and notions learned.

6 Conclusion

This study suggests that the way in which the instructor/lecturer constructed the course could influence students' learning, especially on their appreciation of the course, their engagement, organization of learning, learning experiences related to their online interaction and relationship with instructors and peers, as well as feelings of isolation. Also, reflexive breaks implemented in the competency-based learning scenario could assure students' awareness of the competencies targeted and developed by the course. While this study provided an insight into students' perspective and awareness of the competencies acquired and developed through the course, it has a major limitation on the learning modality students were more comfortable with. A modification on the question phrase will be introduced in the future study. This limitation and the results highlighted by this contribution help us design a more rigorous teaching and research protocol to ensure students' awareness of their competencies development and good distance learning experience.

References

[1] Vidal, F. Covid-19 : mesures prises par le gouvernement pour les établissements d'enseignement supérieur et de recherche. Ministère de l'enseignement supérieur de la recherche et de l'innovation. https://www.enseignementsup-recherche.gouv.fr/cid150297/covid-19-mesures-prises-par-le-gouvernement-pour-les-etablissements-d-enseignement-superieur-et-de-recherche.html%20/. (2020)

[2] Bouzreiba, R. and Kouadria, A.: L'enseignement supérieur dans une approche par compétence (APC) : Conception d'un référentiel de compétences', in R Bouzreiba, H Cellier, A Kouadria (eds.), L'approche Par Compétences Dans l'enseignement Supérieur. Harmattan, Paris, pp. 91–106 (2018)

[3] Stone, T.M. and Perumean-Chaney, S.: The Benefits of Online Teaching for Traditional Classroom Pedagogy: A Case Study for Improving Face-to-Face Instruction. MERLOT Journal of Online Learning and Teaching. Vol. 7, pp. 393-400 (2005)

[4] Horvath, F. and Stone, M.: An assessment of the views, attitudes, and experiences of students, faculty, and outreach personnel on the implementation and delivery of an Internet-based master's degree program. Unpublished manuscript. (2004)

[5] Ritchie, M. and Black, C.: Public Internet Forums: Can They Enhance Argumentative. Writing Skills of Second Language Learners? Foreign Language Annals. Vol. 45, pp 349–361 (2012)

[6] Singh, R. and Kaurt, T.: Blended Learning - Policies in place at Universiti Sains Malaysia', in L. Cher Ping et W. Libing (eds.), Blended learning for quality higher education: Selected case studies on implementation from Asia-Pacific, Unesco, pp. 103-126 (2016)

[7] Banque des Territoires : Les impacts du confinement et de la crise sanitaire sur la jeunesse. Constats, Initiatives locales, Préconisations (2020)

[8] Sloboda, B.: Improving the teaching of statistics online: A multifaceted approach. Journal of Educators Online. Vol. 2, pp 1-13 (2005)

[9] Mallillin, L.L.D., Laurel, R., Mallillin, J., Carag, E. and Guingab-Carag, C.: Competency Based-Learning and Quality Education in the New Normal Modality of Teaching. East African Scholars Journal of Education, Humanities and Literature. Vol. 4, pp. 156-166 (2021)

[10] Fall, M.M.: L'approche par compétences, articulation des formations supérieurs universitaires aux compétences exigées par le marché du travail', in R Bouzreiba, H Cellier, A Kouadria (eds.), L'approche par compétences dans l'enseignement supérieur. L'Harmattan, Paris, pp. 67–78 (2018)

[11] OECD. The future of education and skills: Education 2030. OECD Publishing (2018)

[12] Lancaster, J. and Lundberg, C.: The influence of classroom engagement on community college student learning: A quantitative analysis of effective faculty practices. Community College Review. Vol. 47, pp. 136–158 (2019) https://doi-org.scd-rproxy.u-strasbg.fr/10.1177/0091552119835922

[13] Kirk, J. and Courtner, A.: Self-Direction in Learning of EdD Candidates at a Small, Private Institution. International Journal of Doctoral Studies. Vol. 15, pp. 353–371 (2020) https://doi.org/10.28945/4378

[14] Kolb, D. A.: Experiential learning: Experience as the source of learning and development. Englewood liffs, NJ : Prentice Hall (1984)

[15] Schön, D-A.: Le praticien réflexif: à la recherche du savoir caché dans l'agir professionnel. Éditions Logiques (1994)

[16] Marchand, P. and P. Ratinaud.: L'analyse de similitude appliqueé aux corpus textueles: les primaires socialistes pour l'election présidentielle française. Actes des 11eme Journées internationales d'Analyse statistique des Données Textuelles, pp. 687–699. Liège, Belgique (2012)

[17] Camargo, B. and Justo, A.: R Interface for multidimensional analysis of texts and questionnaires (2016)