RESEARCH ARTICLE

ONLINE EDUCATIONAL COMMUNICATION: *WHAT EFFECT ON THE PERCEPTION OF KNOWLEDGE APPROPRIATION AMONG LEARNERS?*

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ARTICLE INFO	ABSTRACT
	Designing a fully or partially distance teaching/learning device requires, on the one hand, the definition of the learning activities and, on the other hand, the methods of interaction. Interaction supports help the learner to interact to better accelerate his learning process. We rely on the notion of online educational communication to study its effect on the perception of knowledge appropriation. The outcome of this study allows us to understand how students perceive their own way of appropriating knowledge within the online training system via an LMS platform.

INTRODUCTION

The first actor in a training system remains the learner. To stimulate the learning process in a learner, one should think about the activities in which he is invited to participate. Scripting the learner's activities then takes on its full value. The learning scenario thus describes the activities of the learner, specifies their articulation within a learning sequence, designates the resources made available to him and sets out the productions expected of him. For Depover & al. (2003) and Quintin (2007), the learning scenario is built through a succession of steps followed by the learner to achieve a specific educational goal. These steps can be mandatory or optional. When we want to script the interactions between learner and teacher, we are producing a coaching scenario. This second type of scripting can only be carried out if we take into consideration the notion of pedagogical communication. In distance learning, in addition to interactions with course content (Moore, 1989), it is the interactions that take place between learners and the tutor-teacher or between learners themselves that become interesting. They are qualified as pedagogical to specify the context in which they are exercised. Designing a fully or partially remote teaching/learning device requires, on the one hand, the definition of the learning activities and, on the other hand, the methods of interaction. However, the problem of interaction remains an important question because of the non-permanent presence of the tutor-teacher. Depover & al. (2013) state that "the quality of the tutoring from which the learners benefit constitutes a determining variable of the effectiveness of a distance learning system and of the persistence rate. Tutoring would therefore be one of the possible responses that would make it possible to reduce the many dropouts encountered during distance learning". Tutoring thus remains linked to the field of educational communication. Indeed, interaction is first and foremost communication. This is a social act par excellence, and it is in this social component that Vygotsky (1978) fits to situate the first moment of the development of language skills. Social constructivism conceives learning from social interactions. The learner develops knowledge through social interaction and then internalizes it. However, this interaction cannot be carried out unless it is accompanied by supports. Interaction supports help the learner to interact better to better accelerate his learning process. For this reason, the interactions between the learners themselves or between the learners and the tutor-teacher must be scripted. The notion of pedagogical communication then takes on its full value. In this research, following Ibrahimi& al. (2019), we study the hypothesis relating to the effect of online educational communication on the perception of knowledge appropriation. We define pedagogical communication as a set of techniques and strategies that allow a tutor-teacher to optimize the management of the group and the work of the group, because in online teaching, the situation becomes more complex and the use of these techniques and strategies remains decisive. We take into account, in this study, the strategy of assigning roles within an online collaborative learning environment and the technique of structuring the discussion forum. The outcome of this study allows us to understand how students perceive their own way of appropriating knowledge within the online training system via an LMS platform. The perception of appropriation corresponds, in this research, to the metacognitive reflection that the learner exercises on his own process of appropriation of knowledge. In order to measure this perception, we borrow the concept of "controllability of the task" developed by Viau (1994). The research question posed by this study is thus interested in the perception of appropriation among learners from the different experimental groups, through the feeling of controllability of the task. The aim is to see if online pedagogical communication, which is based on a scripting of a collaborative task within groups of learners structured by roles and through a structured forum, positively influences the level of controllability of the task within the group, and is reflected in the perception of ownership.

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METHODOLOGICAL SPECIFICATIONS

Sample: The collaborative activities corresponding to the different phases of development of the final project are carried out by 12 teams of 4 learners, each of whom takes on a specific role. To better conduct the experiment, we set up a cross-experimental plan: the discussion forum (structured vs. unstructured) being associated with one of the two operating modes of the teams (modality 1: team "structured by roles »; modality 2: team « not structured by roles»). The subjects who make up our sample are university students in initial training. Enrolled in the 1st year of the FLE Didactics specialized master, they attend face-to-face activities to appropriate a multimedia educational scripting methodology and the application of this methodology as part of the design of a multimedia educational project. The experiment is carried out with 48 learners spread over two academic years: promotion (2019-2020) and promotion (2020-2021). The average age of the sample is between 20 and 24 years old, 85% of which is made up of girls. The characteristics of the learners from the two promotions are relatively similar if we consider the criteria of the pre-selection and the job interview that were applied to them for recruitment to the training. We can therefore consider that, from the point of view of these criteria, the two promotions are not different and can constitute one and the same sample. The functioning of the collaborative groups during this experiment results from the crossing of two independent variables. The first takes into consideration the assignment or not of roles within the group. The second relates to the collaborative script which structures or not the team forum. For each of these variables, we will present the principles and scientific references that determined their choice as well as the methodology adopted to control them. Assigning roles makes it possible to better manage work teams and better manage their collaborative work. Different studies have assessed role assignment within a collaborative distance learning environment (Strijbos 2004, De Laat&Lally 2005, De Wever 2006, Timmers, Valcke, De Mil &Baeyens 2008, Decamps & al. 2009, De Lièvre & al., 2009, Temperman & al. 2010). Structuring the discussion forum is an online educational communication technique that helps to better manage interaction among team members. According to Dillenbourg (2002), interactions between learners, when they are structured through preconceived scripts, better support collaborative learning. The notion of script then takes on its full value. It corresponds to instructions intended for students in order to guide them in the way of interacting and collaborating to carry out work tasks (Fischer & al. 2013, Ibrahimi & al. 2019, Rais&Ibrahimi 2020, Rais&Ibrahimi, 2021). The theories specific to Computer-Supported Collaborative Learning (CSCL), which stipulate that a well-structured task better promotes the cognitive process in the learner, support the hypothesis and the research question proposed in the context of this work.

Instruments: The analysis is based on a questionnaire completed by the students at the end of a collaborative task (production of a paper model) which corresponds to phase III of the realization of a collaborative project. This questionnaire includes questions from the MLSQ (Motivated Strategies for Learning Questionnaire). The response scale used ranges from 1 (completely disagree) to 5 (completely agree). The scale, totaling 18 items, has three components that relate to the controllability of the task to measure the perception that learners have of their own appropriation of knowledge. Three variables are invoked here: task value, control of learning beliefs, and self-efficacy for learning and performance. Each variable is measured by indicators translated into questions.

RESULTS

Table 1 below provides an overview of the number of occurrences according to the measurement scale (from 1 to 5) for each indicator measuring the degree of controllability of the task.

Table 1. Number of occurrences according to the measurement scale (from 1 to 5) for each measurement indicator

Task value	Measuring scale	1	2	3	4	5	Total
Question #	Measuring indicator						
1	Usability	1	15	21	9	2	48
2	Mastery of course material	1	15	18	14	0	48
3	Usefulness of course material	0	14	25	9	0	48
4	Interest in content	4	11	22	10	1	48
5	Appreciation of goals	1	16	19	11	1	48
6	Importance of goals	1	14	25	6	2	48
Whole		8	85	130	59	6	288
Control of learning beliefs	Measuring scale	1	2	3	4	5	Total
Question n°	Measuring indicator						
7	Ability and learning style	3	12	20	12	1	48
8	Failure: personal factor	1	13	23	11	0	48
9	Success: Personal Factor	0	14	19	15	0	48
10	Learning inability and degree of effort expended	2	15	22	8	1	48
Whole		6	54	84	46	2	192
Self-Efficacy for Learning and Performance	Measuring scale	1	2	3	4	5	Total
Question n°	Measuring indicator						
11	Reward by rating	1	13	19	13	2	48
12	Reward per understanding level 1	4	12	16	14	2	48
13	Reward per understanding level 2	1	16	20	10	1	48
14	Reward per understanding level 3	3	10	22	12	1	48
15	Confidence in his skills	2	16	17	12	1	48
16	Predisposition to success	1	13	21	12	1	48
17	Confidence in his abilities	1	15	18	13	1	48
18	Appreciation of the work context	3	9	21	13	2	48
Whole		16	104	154	99	11	384
Total		30	243	368	204	19	864

The table shows that more than a third of the occurrences (368 occurrences compared to 864 in total) are at number 3 on the measurement scale, while two thirds are at numbers 2 and 4 Overall, the descriptive data show good control of the task and therefore a good perception of the appropriation process. Let's see if this perception varies according to the method of structuring the teams and/or according to the type of forum.

The effect of structuring teams by roles: Figure 1, below, summarizes the differences marked by the G3 group compared to the other groups.
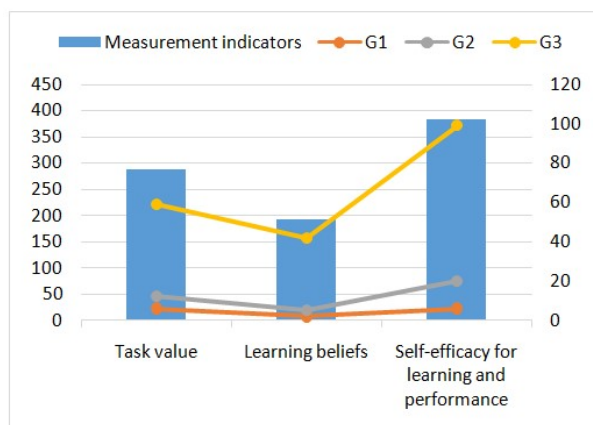

Fig. 1.differences between the experimental groups, located at measurement scale n°4, relative to the total number of measurement indicators

The three variables invoked to measure the degree of task controllability (task value, learning beliefs and self-efficacy for learning and performance) are measured through the total number of responses (vertical axis) according to a measurement scale located between 1 and 5. Here, the measurement is located on scale n°4 (horizontal axis). The "role-structured" group G3 marks a significant departure from the other "non-role-structured" groups G1 and G2. This gap clearly displays the degree of controllability of the task in each of the experimental groups and clearly draws the contours of the perception of knowledge appropriation in each of the experimental groups. For example, the perception of the value of the task depends on the learner's judgment of the usefulness of this task in relation to the goals he is pursuing. In addition, the perception of appropriation is a function of the perception that an individual has of his skills, a perception that is forged through various activities inherent to the task. The learner controls the task better if he judges that his abilities are sufficient to enable him to carry it out. Self-efficacy (a concept very dear to Bandura) which refers to the perception that a student has of his skills is developed when a sufficient degree of controllability of the task is established.

The effect of forum structure

The hypothesis that we pose here seeks to verify whether the structuring of the team forum by roles has an effect on the perception of appropriation. In order to identify the learners' perceptions of the value of the task, it is interesting to examine the measurement indicators located on a scale of (1 to 5). However, it is important to do this reading by considering the particularities of each of the two paths studied (structured forum and unstructured forum). We obtained the results in relation to the value of the task according to six measurement indicators (usability, mastery of the course material, usefulness, interest, appreciation and importance of the objectives) located on a scale of (1 to 5) according to the modality structure of the forum. To identify the perception that learners have of the value of the proposed task, we studied how those from teams interacting in a structured forum perceive the task compared to those from teams interacting in an unstructured forum. Indeed, on reading the results, we find that from scale 3, all the indications become in favor of the teams benefiting from a structured forum. Figure 2 below clearly traces this trend.
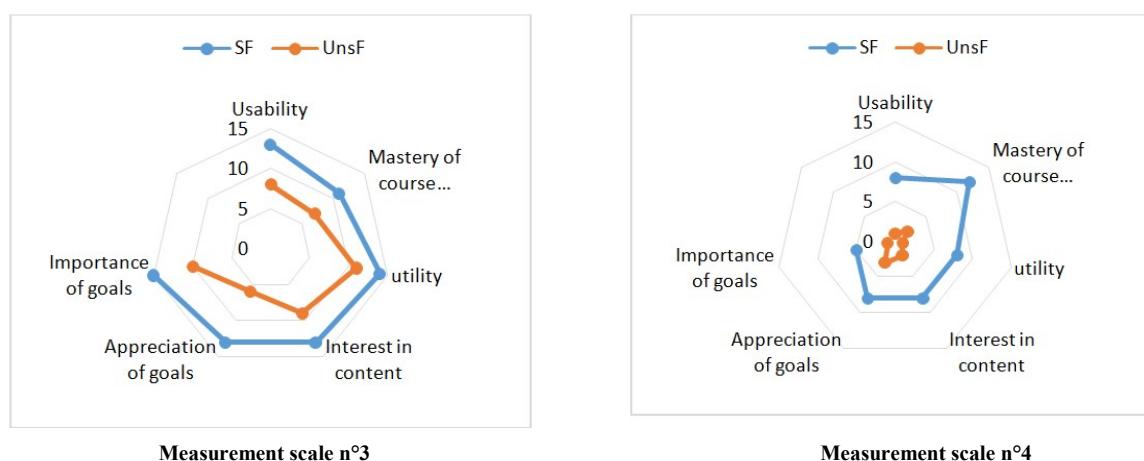

Measurement scale n°3   **Measurement scale n°4**

Fig. 2. Task value measurement indicators, placed at measurement scale n 3 and 4

This figure allows us to question the interest of learners in following this training and the perception of control they may have over the tasks proposed in connection with the structuring of the team forum. This allows us to clearly identify to what extent the non-structuring of the forum is linked to the lack of control over the task.

The interaction effect between the structuring of teams by roles and the structuring of the team forum: The hypothesis relating to the effect of interaction between the structuring of teams by roles and the structuring of the team forum on the perception of appropriation is expressed as follows:

Teams structured by roles and which interact in a " structured forum" from the group (G3), develop a higher degree of controllability of the task, which positively influences their perception of knowledge appropriation than the other teams from the groups (G1) and (G2). To test this hypothesis, we analyze three components that affect task controllability: task value, control of learning beliefs, and self-efficacy for learning and performance. The perception of appropriation among the learners of the different experimental groups depends first on the value they attribute to the task requested. The measurement of this value goes through six indicators located on a scale of (1 to 5). The effect of the interaction between the structuring of the forum and the structuring of the group seems to respond favorably to this measure, the numerical results of which are expressed in Table 2.

Table 2. Indicators of the value of the task according to the measurement scale (from 1 to 5) in relation to the team structuring modality and the team forum structuring modality.

Task Value Indicators																															
Scale	1						2						3						4						5						
Group	G1		G2		G3		G1		G2		G3		G1		G2		G3		G1		G2		G3		G1		G2		G3		
Group structure	GNS		GNS		GS		GNS		GNS		GS		GNS		GNS		GS		GNS		GNS		GS		GNS		GNS		GS		
Structure of the Forum	FS	FNS	FS	FNS	FS	FNS	FS	FNS	FS	FNS	FS	FNS	FS	FNS	FS	FNS	FS	FNS	FS	FNS	FS	FNS	FS	FNS	FS	FNS	FS	FNS	FS	FNS
Usability	0	1	0	0	0	0	0	7	1	7	0	0	7	0	6	1	0	7	1	0	1	0	6	1	0	0	0	0	2	0
Mastery of course material	0	1	0	0	0	0	1	6	0	8	0	0	6	1	5	0	0	6	1	0	3	0	8	2	0	0	0	0	0	0
Utility of the course material	0	0	0	0	0	0	2	7	0	5	0	0	4	1	8	3	2	7	2	0	0	0	6	1	0	0	0	0	0	0
Interest in content	0	2	0	2	0	0	1	4	1	5	0	0	6	2	6	1	1	6	1	0	1	0	6	2	0	0	0	0	1	0
Appreciation of goals	0	0	0	1	0	0	1	8	1	6	0	0	7	0	6	1	0	5	0	0	1	0	7	3	0	0	0	0	1	0
Importance of goals	0	0	0	1	0	0	1	5	1	7	0	0	6	3	7	0	2	7	1	0	0	0	4	1	0	0	0	0	2	0
Whole	0	4	0	4	0	0	6	37	4	38	0	0	36	7	38	6	5	38	6	0	6	0	37	10	0	0	0	0	6	0

Indicators measuring the value of the task are placed at the highest degree of the scale (measurement scale n°5), when they are associated with the group structured by the roles (G3) whose teams have interacted at through a structured forum.

These teams develop a very high level in relation to the value of the task, which influences their perception of knowledge appropriation. A good level of perception of the value of the task will have as a direct consequence, a good perception of appropriation of knowledge. On the other hand, the effect of interaction between the structuring of the teams by the roles and the structuring of the team forum by a collaborative script, seems to be the most favorable modality to respond to this observation. The results expressed in Table 2 attest to this reality, in relation to the measurement indicators located at scales 4 and 5, that is to say, at the highest levels of the measurement scale. These teams also develop a very high level in relation to learning belief, and in relation to self-efficacy for learning and performance.

DISCUSSION

The perception of appropriation corresponds to this metacognitive reflection that a learner exercises on his own process of appropriation of knowledge. This perception largely depends on the degree of controllability of the task presented. Three indicators allowed us to measure the degree of task controllability (task value, learning beliefs and self-efficacy for learning and performance). The degree of controllability of the task makes it possible to understand the effects on the process of knowledge appropriation in a learner. The first effect relates to the choice of behaviors adopted by the learners. A low level of controllability of the task can cause an avoidance of learning situations that the teacher could translate into terms of incompetence. Conversely, a good level of controllability of the task, leads a learner to clearly perceive the process of appropriation of knowledge which pushes him to set more ambitious learning goals. The second effect concerns the persistence in carrying out the requested task. As a learner climbs in higher levels of task controllability, the better he perceives his appropriation of knowledge and the better he gets involved in carrying out the requested task. The perception of appropriation, according to a socio-cognitive approach, is therefore closely linked to the degree of controllability of the task. This depends largely on the perception that a learner has of the value of an activity, the causes explaining its successes or failures and its competence. The learner as an actor of his own choices is therefore at the heart of the appropriation process. However, it seems important to situate this actor in an environmental dynamic, because the perception of appropriation is both a phenomenon internal to everyone and closely linked to the influence of the environment in which everyone evolves. The structuring of the group by roles and the structuring of the discussion forum by scripts play this influence. These considerations should be related to the performance of appropriation. The G3 group, which develops a better controllability of the task and therefore perceives the appropriation of knowledge differently, remains more efficient at the level of the final project. The analysis of the data allowed us to draw the following observation: if a good degree of controllability of the task has as a direct consequence, a good perception of appropriation of knowledge, the effect of online educational communication through the interaction between the structuring of the teams by the roles and the structuring of the team forum by a collaborative script, seems to be a very favorable modality to increase the degree of controllability of the task.

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