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The autonomy-enhancing effects of choice on cognitive load, motivation and learning with digital media

In this essay, I intend to assess the research article *The autonomy-enhancing effects of choice on cognitive load, motivation and learning with digital media* authored by Sacha et al. (2018). I would mainly focus on the content assess by evaluating how the research methods were approached appropriately to address the research questions, reflecting the contribution and limitation of the results and conclusion, figuring out how would I build up my prospective thesis.

Scientific method/Theoretical considerations

After a wide range of efforts have been made and addressed to improve the quality of education have been made, new technology was proved could ensures that the learning process is personalized functionally. But when a reading task is presented to a computer learner, the incentive to join in and continue working on the task quickly vanishes. In this case, it is more likely that providing choice may be a powerful tool for the educator to enhance the learner's autonomy in task-specific behaviors and ultimately his or her motivation to engage in learning. (Patall, Cooper, & Robinson, 2008). For this reason, The purpose of this study was to investigate the inclusion of selection options without changing the properties of digital learning materials (camouflage selection). That is to say, this article aimed to examine the mediating effect of learner's perceived autonomy and intrinsic motivation on the choice effect and the moderating effect of choice correlation by learning about the impact of choice on digital media learning. The hypothesis they put forward was: compared with learners without these options, learners with sham options rated their autonomy and intrinsic motivation as higher, and their external conditioning as lower, as evidenced by their higher learning scores (retention, comprehension). And the effect of choice on learning (retention, transfer) is mediated by perceived autonomy and intrinsic motivation.

In my opinion, the research in this area was not very abundant, to which this experiment might make contribution to an extent. However, due to lack of comparing study, the experiment that they would perform to identify this hypothesis may meet external factors causing conflict without their realization.

Methodology

To investigate these hypothesis, experimental research methodology has been applied in this study. According to Walker (2005), as the quantitative tradition, the purpose of experimental research is to build up a cause and effect relationship between the experimental objectives. To be more detailed, experimental and control groups are needed, and all variables except the independent variables are carefully controlled so that causation, if any, can be determined. In the study, the participants were triggered Induces autonomy by providing a choice of topics before the learning environment begins.

Participating students were given the choice to decide clicking one button that they are more interested between two with different labeled starting topics, while all the buttons led to the same learning content, which the students weren't aware. The experiment consists of three parts, which are explained briefly by the experimenter at the beginning. The first questionnaire collected the prior knowledge, studied the data of web pages, and the second questionnaire collected all other variables. The participants were instructed to read the given materials to test and see how the computer would affect their emotion and effectiveness. This was how the researchers see if the learners who have fraud options rated their autonomy and intrinsic motivation as higher. Hicks (1998) put forward the strength of experimental research, saying randomized controlled trials have a higher status than other studies. Methods serve as the "gold standard" for decision making in a variety of ways. The advantage of this control is that researchers confidently state their abilities, producing results that can only be attributed to the experiment. This is in sharp contrast to descriptive and correlational studies, which are less rigid in their research and description methods. In other words, the scientific and statistical rigor of the experimental  6 by maximizes internal validity and increases the possibility of extending the results beyond the study sample. This explains the value of experimental research as the research method in the study. To increase objectivity, the experimenter used a prefabricated description sheet to describe all the tasks and parts of the experiment. According to these instructions, the students began to do the experiment. Record the task time to analyze possible differences.

However, some potential threats of the experimental research may downgrade the point of this methodology. For example, failure to implement randomization may limit the extent to which the study sample is representative. Besides, experimental research  7 s to follow many ethical considerations, especially when double-blind trials are conducted. Therefore, the ethics of experimental research requires careful assessment of risks and possible benefits, and this information clearly needs to be communicated to prospective participants in the process of obtaining informed consent (Hicks, 1998).

Regard as the result integrity and reduce the downsides of experimental research, I would suggest to employ semi-structured interview and focus group as the qualitative research method to contribute the accuracy of the results and eliminate the interference of the participants' personal factors. Interviews provide useful information when participants cannot be observed directly. Interviewers can have better control over the type of information they receive. They can choose their own problems. If phrased effectively, the question will encourage fair and truthful answers.  8 Qualitative methods, through the interpretation of texts, can be developed to have a deep and broad understanding of these issues (Shirish, 2012). In the interview or focus group, I would invite the participating students to answer the open-ended questions and discuss their opinions and experience with each other to tell the difference

of the participants' motivation. If the choice effect interferes the intrinsic motivation, when conducting the experiments, it might be more helpful to learn about the participants' emotion and how it works to ramp up the motivation. Moreover, Brannen (2005) mentioned three main advantages that mixed method may provide. Firstly, mixed approach research offers opportunities to enhance skills. Secondly, training and experience in mixed approach research are opportunities for lifelong learning. Thirdly, mixed approach research is an opportunity to divert attention from the theoretical work that is usually directed at a particular discipline. That is to say, the appropriate mixed research methods are likely to promote the experimental results and the quality of discussion. With the comparison of the results of experimental research and interpretation of interview and focus group, the interference factors are easier to be found out and removed from the result analysis.

results and relevance to theory

The result of the experiments shows that options for retaining rate has a direct impact, has a direct effect on perceived autonomy. Learning related to retain choice, control of consciousness autonomy directly influence is not significant, indicating that by perceived autonomy to mediate to explore awareness of autonomy on the choice of mediated has nothing to do with learning about the role of the effect of retention rate has nothing to do with the study of choice for retaining rate, control of consciousness autonomy directly influence is not significant), suggests that the mediating role of perceived autonomy. The second experiment was designed to replicate the findings of Experiment 1 and to examine the learning relevance of the choice option as a moderator of the choice's effect on learning. Consistent with experiment 1, it was found that providing learning-related choices increased students' retention and transfer scores, as well as their perception of intrinsic motivation, while scores for external regulation and internal cognitive load decreased. When checking the two different autonomy scores, the decision autonomy was only significantly improved. Compared with experiment 1, decision autonomy, as a kind of perceptual autonomy, is also considered as a medium to learn the influence of related choices on retention. This proves the hypothesis of the choice effect does influence the intrinsic motivation.

However, the influence of non-learning choices on retention was again moderated by decision autonomy. This comparison of results between correlated and unrelated choices may be due to the difference in their effects. While learning-related choices can affect the learner's context and personal interests, choices unrelated to teaching can be seen as meaningful ways of expressing the learner's identity. The hypothesis of whether external conditioning links to their higher learning scores didn't get the evidence by the experiments.

Reflection of the study

The study that conducted by Sacha et al. (2018) had fulfilled the important insights into the effectiveness of choosing digital media for learning. For the first time, the separation between learning-related choices and non-learning-related choices was investigated. Independent of relevance, find the use of selection options useful in the design of digital learning materials. This adds important theoretical significance to the field of selection effects. In addition, this study reveals the mediating role of autonomy in learning. In a practical sense, the results need to be treated with caution¹⁰ because of the pseudo-selection paradigm used in the experiment¹¹. In educational Settings, the choice of camouflage can even have harmful effects if used too much.

The results of this study may help educational designers increase the incentive to maintain collaboration with instructional materials by easily executing simple choices without changing the content of the learning. For those who lack independence, such as schoolchildren, the influence of choice will be particularly helpful in raising awareness of autonomy.

To ensure the best internal effectiveness, experiments are based on camouflage selection, which may be more complicated than that. As a result, they must sacrifice external effectiveness. This can lead to differences in the impact on autonomy and motivation. In addition, not every topic can be divided into two or more options that result in the same text. For example, a learning article about how a chemical process develops may be limited to one topic. Moreover, after a few trials, the choice of make-believe may be obvious. This can lead to negative emotional reactions and reduce learners' performance (Flowerday&Shell, 2015). Since the current survey deals with the short-term effects of motivation on learning, the long-term effects of choice are unpredictable. This may also lead to differences in the results of the mediation analysis, which should be studied more accurately in future studies. Plus, although the findings in this study were repeated in two experiments, the comparability of the experiments may be limited by differences in age span and gender distribution. More complex measures of the retention and transfer components by other measures (for example, publicly answering questions or applying tasks) may validate the differences between these components. Future research should examine whether both variables can be used as moderators of the selection effect. In addition, these studies should expand the number of participants¹² for the aim of finding a more detailed picture of all the effects.¹³

In conclusion

This study is able to demonstrate that this is the design function of providing simple choices will influence the intrinsic motivation for the learning autonomy. Although the research method¹⁴ could be more multiple to refine the results and strengthen the arguments on the choice effect to influence the autonomy on cognitive load, motivation and learning with digital media.

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FINAL GRADE

56/100

GENERAL COMMENTS

Instructor

Scientific method / theoretical considerations

This is an satisfactory assignment which explores cognitive load to some extent and the article's main concerns.

You demonstrate your ability to understand key research approaches to some extent by considering the background literature fairly effectively. However, the style of writing is fairly laboured.

Methodology

You have succeeded in identifying key research methods. The context of the article is described fairly clearly and reference is made to appropriate reading in the module.

Results and relevance to theory

A range of evidence is discussed with reference to good practice. Your review is supported by insights into further research, but this could be analysed more systematically.

You offer fair coverage of the main details and a reasonable structured answer. You attempt to analyse the key research issues but this lacks any real development. You have identified some methodological issues but these are not communicated beyond description.

You might like to consider:

1. Using the Harvard referencing style consistently.

2. Referring to research methods literature in more detail.

3. Paraphrasing more so that your intentions are clearer.

4. Proofreading your work carefully.

PAGE 1



Comment 1

Avoid colloquial style.



Comment 2

Meaning unclear.



Comment 3

Can you paraphrase?



Comment 4

Explain fully. The meaning is fairly obscure.



Comment 5

clarify

PAGE 2



Comment 6

A critical awareness of current debates is attempted though this is under-developed occasionally.



Comment 7

Further links between.



Comment 8

re-phrase.

PAGE 3



Comment 9

How? give further details.

PAGE 4



Comment 10

Why do the results need to be treated with caution?



Comment 11

clarify.



Comment 12

??



Comment 13

How many participants would you recommend to ensure that the study is viable?



Comment 14

Conclusion is weak and fairly unclear.

PAGE 5



Comment 15

Over- reliance on limited authors.



Comment 16

Please follow the guidelines for Harvard referencing. All references should be in alphabetical order. This should be sorted by now :)