UDC 370

THE IMPORTANCE OF INTERDISCIPLINARY KNOWLEDGE ACCEPTANCE BY STUDENTS

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Paper arises from the importance of integration of economics/business and spatial sciences' knowledge, for graduates who nowadays have to think and act interdisciplinary. The combined interdisciplinary approach is also the focus of the Erasmus+ Strategic Partnership Project, named Spationomy (spatial + economy), starting in year 2016. Participation of students in this project offer the unique opportunity to study the important factors that contribute to the attitudes of students towards interdisciplinary knowledge and factors that shape their intentions to use and integrate this knowledge in the future. The conceptual model formed was tested using the factor and regression analyses.

Keywords: *interdisciplinary knowledge acceptance model, spatial geography, economics and business studies.*

Acknowledgement*: This paper is supported by the project no. 2016-1-CZ01-KA203-024040 Spatial exploration of economic data: methods of interdisciplinary analytics (Spationomy) funded by the European Union within the Erasmus+ programme.*

ВАЖНОСТЬ ВОСПРИЯТИЯ СТУДЕНТАМИ МЕЖДИСЦИПЛИНАРНЫХ ЗНАНИЙ

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Статья исходит из важности интеграции знаний экономики / бизнеса и пространственных наук для выпускников, которые в настоящее время должны мыслить и действовать междисциплинарно. Комбинированный междисциплинарный подход также находится в центре внимания проекта Erasmus + Strategic Partnership, названного Spationomy (spatial + economy), начиная с 2016 года. Участие студентов в данном проекте дает уникальную возможность изучить важные факторы, способствующие формированию отношения студентов к междисциплинарным знаниям, а также факторы, формирующие их намерения использовать и интегрировать эти знания в будущем. Сформированная концептуальная модель апробирована с использованием факторного и регрессионного анализа.

Ключевые слова: *междисциплинарная модель принятия знаний, пространственная география, экономика и бизнес-исследования.*

Признание: *этот документ поддерживается проектом № 2016-1-CZ01-KA203-024040 пространственное исследование экономических данных: методы междисциплинарной аналитики (Spationomy), финансируемые Европейским Союзом в рамках программы Erasmus+.*

1. Introduction

In this paper we focus on the interdisciplinary field that combines several view-points from economics and business sciences on one side and of spatial geography on the other side. The main challenge of this research lies in the fact that economic data analysis is a very important part of decision making process – nowadays the importance of the geospatial component inherent with the most economic data is rapidly increasing (Rae and Sener, 2016; Terhorst and Erkus-Oeztuerk, 2015; Agliari et. al, 2014; Schulz and Bailey, 2014; Brouder and Eriksson, 2013; Hildreth and Bailey, 2013, etc.). Therefore the high added value of bringing together geospatial aspects in economic data analysis is highly appreciated.

This is also the focus of the project Spationomy (Erasmus+ project starting in 2016 for three years) with the important aim to improve students' interdisciplinary skills by interconecting both fields, economiy, business, management and business informatics on one side and geoinformatics and spatial geography on the other side. Participation of students in this project also offer the unique opportunity to study the important factors that shape the acceptance of interdisciplinary knowledge by students and factors that shape their intentions to use this interdisciplonary knowledge in the future.

2. Research objective

The main objective of this paper was to test the conceptual model - our research is based on the model TAM – Technology Acceptance model (Davis, Bagozzi and Warshaw, 1989), that postulates that the actual behaviour (which is in our case the intended future use of interdisciplinary knowledge by students) is determined by behavioral intentions to use it. Behavioral intentions are viewed as being jointly determined by the individual's attitudes towards usage and by perceived usefulness (in our case the perceived usefulness of the interdisciplinary knowledge and attitudes towards the future use of interdisciplinary knowledge). Perceived ease of use (in our case perceived ease of use and integrations of interdisciplinary knowledge by students) shapes the perceived usefulness as well as the attitudes toward using it. External factors are included into the model as determinants of perceived usefulness and perceived ease of use (in our case of the interdisciplinary knowledge). In our research, we expanded the model by the external factors that describe individual's characteristics of students, that may be important when perceived ease of use and perceived usefulness of interdisciplinary knowledge are shaped by individuals.

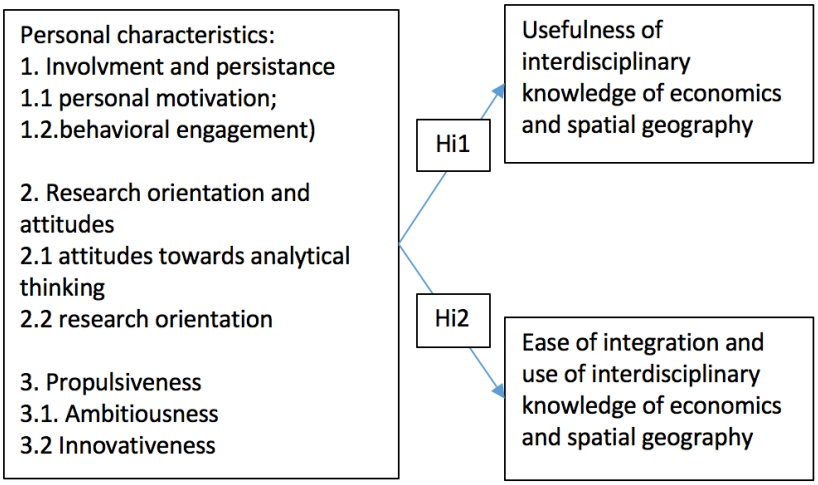

Figure 1 – External constructs – personal characteristics

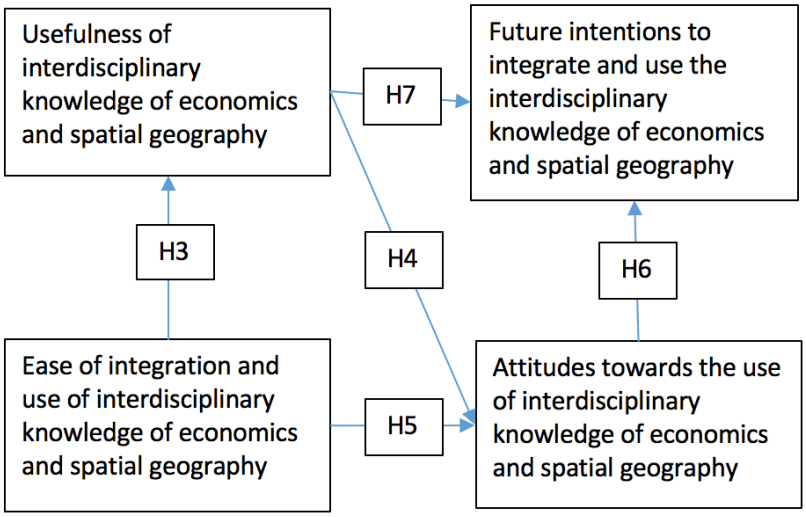

Figure 2 – Conceptual model of research – constructs of original TAM

The impact of included external factors is presented by Figure 1, while the conceptual model of research is presented by Figure 2 – with the constructs of the original TAM. The following hypotheses were developed:

Hi1: i-th personal characteristic of students (i = 1,2,…,6) have a statistically significant impact on perceived usefulness of interdisciplinary knowledge.

Hi2: i-th personal characteristics of students (i = 1,2,…,6) have a statistically significant impact on perceived ease of integration and use of interdisciplinary knowledge.

H3. Perceived ease of integration and use of interdisciplinary knowledge has a statistically significant impact on its' perceived usefulness.

H4. Perceived usefulness of interdisciplinary knowledge has a statistically significant impact on students' attitudes towards the use of this interdisciplinary knowledge.

H5. Perceived ease of integration and use of interdisciplinary knowledge has a statistically significant impact on students' attitudes towards the use of this interdisciplinary knowledge.

H6. Students' attitudes towards the use of interdisciplinary knowledge has a statistically significant impact on students' future intentions to integrate and use this knowledge.

H7. Perceived usefulness of interdisciplinary knowledge has a statistically significant impact on students' future intentions to integrate and use this knowledge.

3. Data and methodology

The data basis for our research is a sample of 99 students. All students fullfiled the questionnaire before the Spationomy project began with the purpose to get the unbiased answers, therefore the newly gained knowledge about this interdisciplinary field could not have had the influence on their opinions. The data was collected with the help of an online questionnaire, from February 27 to March 10, 2017. Statistical Package for the Social Sciences (SPSS) and SmartPLS software were used to conduct factor and regression analyses.

4. Results

In Table 1 results of the factor analysis, performed with the purpose to form the multidensional variables of the model based on items in the questionnaire, are presented. Results show, that the use of factor analysis is justified (KMO > 0.5, significant Bartlett's test of sphericity) and that the factors obtained explain a satisfactory high percentage of variance of measured variables (items in the questionnaire).

Table 1 – **Factor analysis results**

Factors – multidimensional variables	KMO	Bartlett's test - p values	% of variance explained	Cronbach's alpha
Propulsiveness - ambitiousness	0.817	0.000	78.69	0.875
Propulsiveness - innovativeness				
Involvement and persistance – personal motivation	0.827	0.000	65.12	0.826
Involvement and persistance – behavioral engagement				
Orientation and attitudes – analytical thinking	0.890	0.000	64.21	0.911
Orientation and attitudes – research orientation				
Ease of use	0.817	0.000	74.75	0.887
Usefulness	0.804	0.000	65.05	0.872
Attitudes towards use	0.842	0.000	82.70	0.929
Intentions	0.677	0.000	78.53	0.862

In Table 2 the results of testing hypotheses H1 – H7, using simple regression models to test dependencies stated in the individual hypotheses, are presented.

Table 2 – **Results of hypotheses testing – simple regression models**

Relationship	Regression coefficient	p values
Propulsiveness - ambitiousness→Usefulness	0.331	0.001
Propulsiveness - innovativeness→Usefulness	0.346	0.000
Involvement and persistance – personal motivation→Usefulness	0.234	0.020
Involvement and persistance – behavioral engagement→Usefulness	0.377	0.000
Orientation and attitudes – analytical thinking→Ease of use	0.326	0.001
Orientation and attitudes – research orientation→Ease of use	0.235	0.019

Ease of use→Usefulness	0.570	0.000
Ease of use→Attitudes towards use	0.672	0.000
Usefulness→Attitudes towards use	0.778	0.000
Uefulness→Intentions	0.716	0.000
Attitudes towards use→Intentions	0.695	0.000

Source: authors' calculation

We found, that within Propulsiveness of students, both dimensions - the students' Ambitiousness and Innovativeness - have a significant and positive effect on perceived Usefulness of integration and use of the spationomial interdisciplinary knowledge *(β* = 0.331 and *β* = 0.346, respectively). Also both dimensions of students' Involvment and persistance – the Personal motivation and Behavioral engagement – have a significant and positive effect on perceived Usefulness of integration and use of the spationomial interdisciplinary knowledge *(β* = 0.234 and *β* = 0.377, respectively), as well as bothe dimensions of students' Orientation and attitudes – Analytical thinking and Research orientations *(β* = 0.326 and *β* = 0.235, respectively). Therefore hypotheses Hi1 and Hi2 can be confirmed.

Perceived Ease of integration and use of spationomy interdisciplinary knowledge has a statistically significant effect on students' perceived Usefulness (*β* = 0.570) as well as on students' Attitudes towards use of the spationomial interdisciplinary knowledge *(β* = 0.672), therefore hypotheses H3 and H5 are confirmed.

Results also confirm hypotheses H4, H6 and H7. Students' perceived Usefulness of spationomy interdisciplinary knowledge has a direct effect on students' Intentions to use this interdisciplinary knowledge in the future *(β* = 0.716), thus confirming H7. But perceived Usefulness has also an indirect effect on students' Intentions to use the spationomy knowledge. Namely, perceived Usefulness has a significant positive effect on the students' Attitudes towards use of the spationomial interdisciplinary knowledge *(β* = 0.778), thus confirming H4 and Attitudes have furthermore the direct effect on students' Intentions to use the spationomial knowledge in the future *(β* = 0.695). This confirms also H6 at the same time.

5. Discussion and conclusion

In this preliminary study we examined the students' attitudes and future intentions to use and integrate the interdisciplinary knowledge of spatial geography and economics/business studies, based on the survey during the first year (2016/2017) of the Erasmus+ Strategic Partnership Project Spationomy.

Findings suggest that students assess and perceive usefulness of the spationomy through their study and learning activities and obligations that they have within studies, thus implaying the importance of curriculum development that integrates the interdisciplinary aspect formaly into the study programs. Results of study therefore have important implications for higher education institutions, reforming and updating their study programs.

Results of this preliminary study are rising questions for further research, especially regarding the implications for educators. Since students nowadays need to think beyond bounderies of their narrow study discipline and have to gain competences to think and act across disciplins, the important question is how to bring

the effective interdisciplinary reasonong and communication training into the education systems. The strategic partnership project Spationomy, within which this research was conducted, offer an important opportunity to develop the tailor made approaches to the teaching and learning approaches within the interdisciplinary field of economics/business studies and spatial geography.

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