Examining the Perceived Usefulness of ICTs for Learning about Indigenous Foods

K. M. Ngcobo, S. D. Eyono Obono

Abstract—Science and technology has a major impact on many societal domains such as communication, medicine, food, transportation, etc. However, this dominance of modern technology can have a negative unintended impact on indigenous systems, and in particular on indigenous foods. This problem serves as a motivation to this study whose aim is to examine the perceptions of learners on the usefulness of Information and Communication Technologies (ICTs) for learning about indigenous foods. This aim will be subdivided into two types of research objectives. The design and identification of theories and models will be achieved using literature content analysis. The objective on the empirical testing of such theories and models will be achieved through the survey of Hospitality studies learners from different schools in the iLembe and Umgungundlovu Districts of the South African Kwazulu-Natal province. SPSS is used to quantitatively analyze the data collected by the questionnaire of this survey using descriptive statistics and Pearson correlations after the assessment of the validity and the reliability of the data. The main hypothesis behind this study is that there is a connection between the demographics of learners, their perceptions on the usefulness of ICTs for learning about indigenous foods, and the following personality and eLearning related theories constructs: Computer self-efficacy, Trust in ICT systems, and Conscientiousness; as suggested by existing studies on learning theories. This hypothesis was fully confirmed by the survey conducted by this study except for the demographic factors where gender and age were not found to be determinant factors of learners' perceptions on the usefulness of ICTs for learning about indigenous foods.

Keywords—E-learning, Indigenous Foods, Information and Communication Technologies, Learning Theories, Personality.

I. INTRODUCTION

HUMAN society has been changing from time to time over the past centuries and this modernization process has deeply affected our lives [1]. "Science and technology in particular have had a major impact on many societal domains such as communication, medicine, food, transportation, etc." [2:6]. On the other hand, indigenous systems still remain part and parcel of the culture and history of many traditional communities [3]. Indigenous Knowledge (IK) can be described as the combination of traditional rituals ideas, beliefs, values, and norms which are natural to indigenous communities, and such knowledge is rooted in the minds of

K. M. Ngcobo is with the Durban University Technology,4/31 of Information Technology,41-43 Centinary Road, P.O Box 1334, Durban, 4001, South Africa (phone: +27 (0)31-907-7468; fax: +27(0)31-373-5543; e-mail: khumbu@mut.ac.za).

S. D. Eyono Obono is with the Durban University Technology,4/31 of Information Technology,41-43 Centinary Road, P.O Box 1334, Durban, 4001, South Africa (phone: +27 (0)31-373-5692; fax: +27(0)31-373-5543; e-mail: eyonoobonosd@dut.ac.za).

local people [4]-[6]. According to [7], IK is a key for the sustainable social and economic development of local communities. With regards to the specific context of indigenous foods which is the main focus of this study, according to [3] indigenous foods are considered as a long lasting legacy passed on throughout centuries by ancestors. "Due to altered lifestyles, this legacy is slowly disappearing and future generations may be totally deprived of it" [3:503]. There is therefore an urgent need to study indigenous foods in order to preserve knowledge about them.

Problem Statement

This research is motivated by the problem of the dominance of modern technologies and education which can have negative unintended outcomes such as rural to urban migration, changes in population structure, and the loss of indigenous knowledge [4], [5]. The following questions can be formulated from this problem, and such questions can also be transformed into relevant research aims and objectives.

Main Research Question

What are the factors that affect the perceptions of learners on the usefulness of Information and Communication Technologies (ICTs) for learning about indigenous foods, and which recommendations can be made to promote the learning of indigenous foods through eLearning?

Research Question 1: What are the theories that can explain the perceptions of learners on the usefulness of ICTs for learning about indigenous foods?

Research Question 2: How can the contributing factors to the perceptions of learners on the usefulness of ICTs for learning about indigenous foods are shaped into a hypothetical model?

Research Question 3: How can a hypothetical model on the factors affecting the perceptions of learners on the usefulness of ICTs for learning about indigenous foods be empirically validated?

Research Question 4: Which teaching and learning strategies can be proposed from the knowledge of the factors affecting the perceptions of learners on the usefulness of ICTs for learning about indigenous foods?

Aim and Objectives

The aim of this study is to examine the factors affecting the perceptions of learners on the usefulness of ICTs for learning about indigenous foods, in an attempt to contribute towards solving the above identified problem of the loss of indigenous knowledge as a negative unintended outcome of modern

technologies. This aim is further expressed by the following objectives:

a) To select suitable theories that can explain the perceptions of learners on the usefulness of ICTs for learning about indigenous foods.
b) To design a conceptual model of the factors affecting the perceptions of learners on the usefulness of ICTs for learning about indigenous foods.
c) To empirically test the above planned conceptual model of the perceptions of learners on the usefulness of ICTs for learning about indigenous foods.
d) To make recommendation on how to improve learners usage of ICTs for learning about Indigenous foods.

II. LITERATURE REVIEW

A. Theories

This section gives an overview of existing literature on theories that can explain the perceptions of learners on the usefulness of ICTs for learning about indigenous foods, in other words, on the usefulness of eLearning for learning about indigenous foods in schools. This literature was therefore obtained using the search keywords "eLearning theories" on Internet. A review of eLearning theories conducted by [8:4] rightfully points out that "there are really no models [or theories] of eLearning per se – only e-enhancements of models [or theories] of learning". Therefore, this study can consider that learning theories are the best foundation to describe the perceptions of learners on the usefulness of ICTs for learning about indigenous foods. A new Internet search was therefore conducted using the keywords "Theories of learning" + "an overview", which led to [9] giving an overview of existing learning theories, and to [10]-[15] on the Social Cognitive Learning Theory. According to [9] and [10]-[16], common learning theories include: Behavioral theories, Cognitive theories, Constructivist theories, Social learning theories, Social Cognitive theories, and social constructivist theories. These last three social theories of learning are hereby briefly described. Moreover, the Big Five Personality factors are also introduced based on the fact that "the big five factors extraversion, conscientiousness and openness to experience are educationally relevant" ([17] cited by [18:132]) and they will be used in the eLearning adoption model proposed by this study.

Social Cognitive Theory

"This theory explains human functioning in terms of a triadic reciprocal causation that all operate as interacting determinants influencing one another bidirectional" ([11] cited by [10:14]): internal personal factors in the form of cognitive, affective, and biological events; behavioral patterns; and environmental influences. Thus, socio-structural factors affect behavior largely through their impact on people's aspirations, sense of efficacy, personal standards, affective states, and other self-regulatory influences, rather than directly [10]. "Among the mechanisms of personal agency, none is more central or pervasive than people's beliefs in their capability to exercise some measure of control over their own functioning and over environmental events" ([12] cited by [10:10]). "Efficacy beliefs or self-efficacy are therefore the foundation of human agency: Unless people believe they can produce desired results and forestall detrimental ones by their actions, they have little incentive to act or to persevere in the face of difficulties" [10:10]. According to [12] cited by [13:628], the Social Cognitive theory of learning is one of the most influential theories in psychology and education today.

Social Learning Theory

This learning theory is described by [14] as consisting of four distinct components or sub-processes: attention, retention, motor reproduction, and motivation. According to [14], this theory assumes that learners produce their own model of what is to be learned by paying attention during the learning process so that they can be able to retain what is being taught and reproduce it later on provided that they are motivated to do so. It is important for learners to feel a clear sense of trust and safety for them to be able to freely pay attention and be motivated in the learning process [15].

Social Constructivism Theory

According to [16], this theory emphasizes the importance of context and culture for the understanding of what occurs in society and for the construction of knowledge based on this understanding. Social constructivism is associated with other similar social learning theories such as developmental theories by Vygotsky and Bruner, and Bandura's social cognitive theory. It relies on the need for collaboration among learners and practitioners .and it is based on the following assumptions: "reality is constructed through human activity., knowledge is human product that is socially and culturally constructed; and learning is a social process which does not take place only within an individual, nor is it a passive development of behaviors that are shaped by external forces" [16:3].

Big Five Personality Traits Theory

According to [19], there are five traits that can explain people's personalities at the highest level: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. People are said to be extravert when they are talkative, assertive, and energetic. Agreeable people are those who are good in nature, cooperative, and trustful. Conscientiousness refers to a sense of order, responsibility, and dependability. Neuroticism is considered as not being calm, fearful, and being easily upset. Open people are "intellectual, imaginative and independent-minded" [19:104].

B. Conceptual Models and Frameworks

In this study, social cognitivism, social learning theories, social constructivism, and the big five personality traits theory were chosen as the foundation that can explain the perceptions of learners on the usefulness of ICTs for learning about indigenous foods; and the models reviewed in this section are related to these three theories: social networked learning adoption model [20], technology adoption models [21], and a

model to determine students' intentions to use eLearning as proposed by [22].

The following model adds Social Constructivism to the Technology Acceptance Model (TAM). This model [20] adds a social constructivists flavor to TAM. It argues that self-efficacy is the most important determinant factor towards the adoption of social networks for learning. Because it allows people to realize how social network systems can be useful in their learning processes (See Fig. 1).
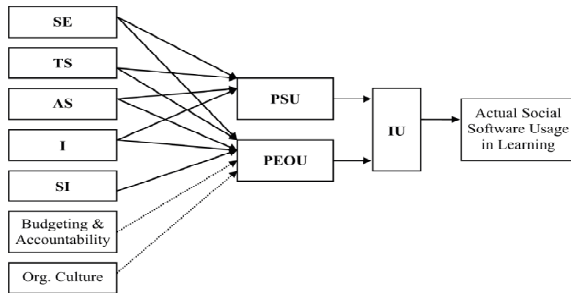

Fig. 1 A model for social networked learning adoption

The following model merges of Technology Acceptance Model (TAM) with the Theory of Planned Behavior and (TPB) with Trust construct. A model was developed and tested by [21] where TAM, TPB, and the Trust construct are merged in order to examine factors influencing the adoption and acceptance of Internet banking. According to this model trust has a positive effect on perceived usefulness of ICTs [20] (See Fig. 2).

The following model merges of Technology Acceptance Model (TAM), Social Cognitivism and the Big Five Personality factors into an eLearning adoption model. This model includes all the TAM constructs. However only three out of the big five personality factors are included in this model namely extraversion, conscientiousness, and neuroticism, but openness to experience and agreeableness are excluded from the model. Self-efficacy from social cognitivism is also included in this model [22] (See Fig. 3).
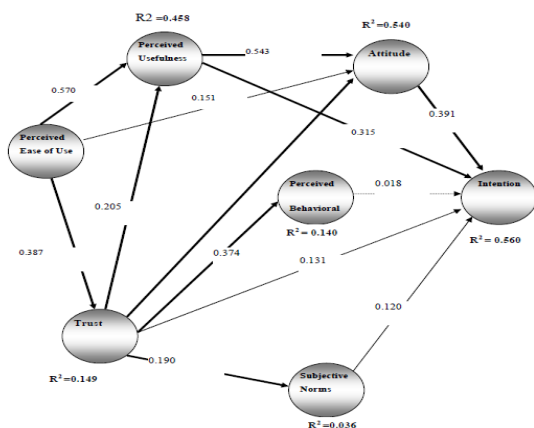

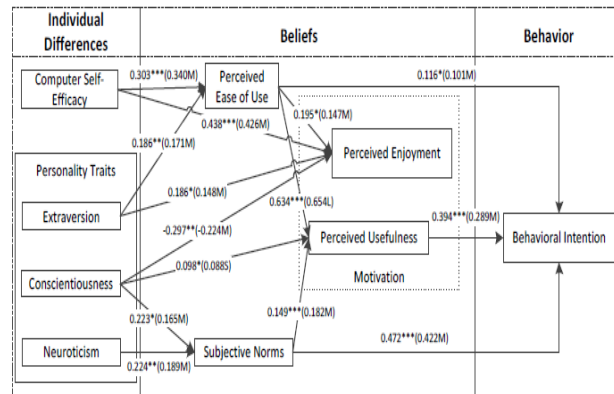Fig. 2 Internet banking adoption model

Fig. 3 ELearning adoption model

C. A New Conceptual Model

This Study proposes a new model of the factors influencing the perceptions of learners on the usefulness of ICTs for learning about indigenous foods. The structure of the rest of this paper will simple follow this model which is presented in Fig. 4 and that represents the following research hypotheses to be empirically verified later on in this study.

Ha0: There is a direct relationship between the demographics of a learner, and his or her perceptions on the usefulness of ICTs for learning about indigenous foods.

Hb0: There is a direct relationship between the demographics of a learner and his or her computer self-efficacy levels.

Hc0: There is a direct relationship between the demographics of a learner and his or her perceived trust in ICT systems.

Hd0: There is a direct relationship between the demographics of a learner and his or her level of conscientiousness.

He0: There is a direct relationship between a learner's computer self-efficacy levels and his or her perceptions on the usefulness of ICTs for learning about indigenous foods.

Hf0: There is a direct relationship between a learner's level of trust on ICT systems and his or her perceptions on the usefulness of ICTs for learning about indigenous foods.

Hg0: There is a direct relationship between a learner's conscientiousness level and his or her perceptions on the usefulness of ICTs for learning about indigenous foods.
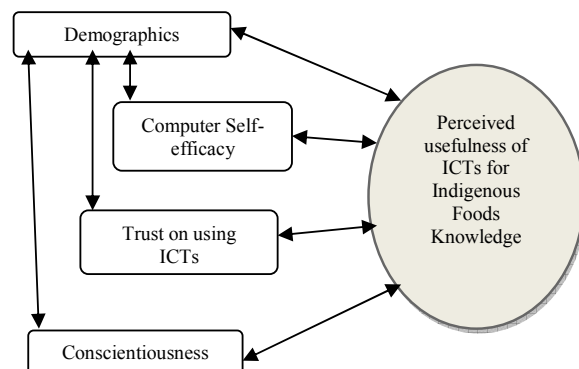

Fig. 4 Conceptual Model for learners' perceptions on the usefulness of ICTs for learning about indigenous foods

D. Empirical Studies

This section will present an overview of existing empirical studies on the perceptions of learners on the usefulness or use of ICTs for learning about indigenous knowledge in general, and indigenous foods in specific. These studies were retrieved from Google using the search keyword "indigenous knowledge "+"traditional foods"+ "eLearning". A handful of papers were found, mainly consisting of case studies.

- An experimental case study was conducted in the Kasetart University in Thailand using 20 undergraduate students in home economics to investigate the usefulness of eLearning to learn about Thai foods [23].
- A survey of 76 teachers and 117 teenagers by [24] was conducted in Taiwan to find teachers' and students' perceptions of the usefulness of eLearning for language revitalization.
- A case study of 10 Information Technology educators was conducted in Region 7 (Provinces of Cebu, Dumaguete, Bohol and Siquijor) in Philippines to measure teachers' usage of eLearning for the preservation of local knowledge and indigenous practices [25].
- A case study of 13 students was conducted in Palestine to investigate the usefulness of email exchanges with native speakers for the development of students' awareness of cultural aspects in relation to food, sport, religion, music, marriage, etc. [26].
- A case study was conducted by [27] using primary and secondary cross-national students in Milan schools to examine the usefulness of eLearning for learning about different traditional cultural content for food, art, sport, music, etc. For example, students had to collect information about traditional food and cooking from other countries so they could build a virtual Dutch house of food using a virtual learning environment.

This section will now present the results from the studies above introduced.

Demographics.

According to [24], geographical differences and internet access significantly influence teachers' attitude towards the eLearning of indigenous languages. Moreover, the class level or grade of a student has a significant influence on his or her perceived usefulness of eLearning for learning about indigenous languages. The findings of this study also reveal that computer literacy has a significant relationship with attitude toward eLearning in Thailand.

Perceived Usefulness

According to [23], eLearning is useful for learning about indigenous Thai foods. According to [24], eLearning materials are helpful for the learning of native languages, in particular for young people. Teachers are willing to use suitable eLearning programs to teach indigenous languages [24]. Findings from [25] indicate that teachers are willing to use eLearning for the integration of local knowledge and for the preservation of indigenous practices. The emailing system was found by [26] to be useful for learning about different cultural items such as food, marriage, traditions, funerals, clothes, *etc*. According to [27], ICTs are useful for gathering and learning about different types of traditional foods knowledge like food recipes, ingredients, and meals organization.

E. Research Gap

The Disturbing Fact about the above review of empirical studies is that none of these studies took place in Africa.

III. RESEARCH DESIGN

In this section, both quantitative and qualitative approaches are presented towards the fulfilment of the objectives of this research.

A. Literature Review on the Usefulness of ICTs for LEARNING about Indigenous Foods

Objectives a, b, and d are achieved in the second and in the last section of this paper using a review of existing literature on the usefulness of ICTs for learning about indigenous foods.

B. Survey of Hospitality Studies Learners from the Secondary Schools of the ILembe and UMgungundlovu Districts of the KwaZulu-Natal Province in the Republic of South Africa

The model proposed by Fig. 4 will be empirically verified through a survey of Hospitality Studies learners selected from secondary schools of the ILembe and UMgungundlovu districts of the KwaZulu-Natal province in the Republic of South Africa.

Population and Sampling

The population of this survey consists of grade 10, 11, and 12 Hospitality Studies learners from the ILembe and UMgungundlovu magisterial district, KwaZulu-Natal, South Africa. According to the data provided by the department of education of the KwaZulu Natal province, these two districts have a total population of 864 Hospitality Studies learners. The sample size of this research is calculated based on the sample size calculation formula below proposed by [28] for finite population where Z = 1.96, P = 0.5, d = 0.0371, N = 864. This gives a sample size of 115.

$$n^1 = \frac{NZ^2P(1-P)}{d^2(N-1) + Z^2P(1-P)} \qquad (1)$$

Research Variables and Data Collection

The research variables for the survey conducted by this study can be found on Fig. 4: demographics, computer self-efficacy, and trust on ICT systems, conscientiousness and usefulness of ICTs for learning about indigenous foods. Likert scales were used for each of the 10 items of the different research variables, but demographic items such as gender, age, school location, etc., were categorical. The scale for computer self-efficacy was adapted from the three-factor model of computer self-efficacy [29]. The scale for trust on ICT systems was adapted from the trust scale proposed by [30]. The scale for conscientiousness was adapted from the facets of conscientiousness proposed by [31]. The scale for perceived

usefulness of ICTs for learning about indigenous foods was adapted from the list of annual teaching plans for hospitality studies provided by the Department of Education of the Republic of South Africa [32].

IV. RESULTS

This section presents the results of this study under the basic assumption that the perceptions of learners on the usefulness of ICTs for learning about indigenous foods depend on certain characteristics of their personality in relation to teaching and learning. Data collected from the survey conducted by this study was analyzed using SPSS after reliability and validity tests. Frequencies and means were also analyzed for all the items of the research variables, as well as the correlation between the different variables.

Data Validity and Reliability

Table I shows the reliability of the data collected by this survey: all Likert-scale based research variables have a Cronbach's alpha (α) greater than 0.7 except for one whose value is below but close to 0.7.

TABLE I
RELIABILITY TABLE FOR RESEARCH VARIABLES

Research Variable	No of items	Cronbach's Alpha (α)
Computer Self Efficacy	10	0.850
Trust in ICT systems	10	0.728
Conscientiousness	10	0.648
ICT Usefulness	10	0.813

A Descriptive Statistics

This section presents descriptive statistics on the demographics of the participants of this study, on their perceived self-efficacy on computers, their perceived trust on ICTs, their perceived conscientiousness, and on their perceptions on the usefulness of ICTs for learning about indigenous foods.

Demographics

Descriptive statistics on the demographics of the learners who participated in this study indicate that the overwhelming majority of these learners are females (see Table II). They are spread evenly among grades. The majority of learners are above 16 years of age, and both urban and rural schools are almost equally represented in the study. The majority of learners have no access to computers, but most of them have access to cellphones with internet. Almost half of the participants indicated that they still consume indigenous foods at least monthly. But it is also interesting that for the majority of the participants, the place where they consume indigenous foods is at home only (See Table II).

Computer Self-efficacy

According to Table III, the level of computer self-efficacy for the majority of learners is low.

TABLE II
DEMOGRAPHICS OF LEARNERS

A		Percentage
A1	Male	37.4
	Female	62.6
A2	Urban	41.7
	Rural	58.3
A3	14-15	8.7
	16-17	40.0
	18 and above	51.3
A4	Grade 10	29.6
	Grade 11	47.8
	Grade 12	22.6
A5	None	13.9
	Cellphone with Internet	62.6
	Cellphone with no internet	20.9
	Other	2.6
A6	None	62.6
	Home	21.7
	School	11.3
	Home and school	4.3
A7	Languages	67.8
	Mathematics	11.3
	Science and Technology	13.9
	Social Sciences	7.0
A8	None	44.3
	Daily	13.0
	Weekly	19.1
	Monthly	23.5
A9	Almost everyday	13.0
	Almost every week	27.0
	Almost once a month	37.4
	Hardly once a year	7.8
	On traditional occasions only	14.8
	In traditional ceremonies	17.4
A10	At home only	42.6
	At restaurant only	7.0
	Both home and restaurant	33.0

TABLE III
COMPUTER SELF-EFFICACY

B	S1	S2	S3	S4	S5	Mean	SD
B1	0	5	31	52	11	3.70	.740
B2	6	51	31	9	3	2.50	.842
B3	10	66	14	10	0	2.23	.762
B4	21	57	16	5	1	2.08	.807
B5	7	22	59	8	4	2.81	.847
B6	31	59	4	3	3	1.86	.826
B7	32	57	9	2	1	1.83	.729
B8	35	44	17	3	1	1.91	.854
B9	49	43	8	1	0	1.61	.671
B10	33	36	27	3	2	2.04	.931
Average	22.4	44	21.6	9.6	2.6		

Trust on ICTs

According to Table IV, a majority of the learners who participated in this study indicated that they generally trust ICT systems.

Conscientiousness

According to Table V, the majority of the learners who participated in this study see themselves as conscientious people.

Perceptions on the Usefulness of ICT for Learning about Indigenous Foods

The majority of learners who participated in this study indicated that they perceive ICTs as useful for learning about indigenous foods (See Table VI).

TABLE IV
TRUST ON USING ICTs

C	S1	S2	S3	S4	S5	Mean	SD
C1	9	13	30	36	13	3.31	1.127
C2	10	33	29	23	5	2.79	1.072
C3	7	12	21	38	22	3.56	1.164
C4	1	8	30	43	18	3.70	.890
C5	3	23	43	22	10	3.12	.966
C6	5	30	34	27	3	2.93	.962
C7	1	18	30	38	12	3.43	.956
C8	4	15	34	37	10	3.34	.999
C9	4	15	37	32	12	3.33	1.015
C10	10	21	37	25	8	3.01	1.080
Average	5.4	18.8	32.5	32.1	11.3		

TABLE V
CONSCIENTIOUSNESS

D	S1	S2	S3	S4	S5	Mean	SD
D1	4	6	30	45	14	4.14	1.197
D2	0	3	14	53	30	4.34	.889
D3	1	7	30	37	24	4.55	.867
D4	0	5	20	43	32	4.38	.979
D5	3	12	21	33	30	4.31	1.030
D6	1	8	37	31	23	4.46	1.017
D7	3	9	46	29	14	4.43	1.045
D8	1	10	37	37	15	4.40	1.028
D9	1	8	32	40	19	4.48	1.017
D10	1	8	24	37	30	4.60	.844
Average	1.5	7.6	29.1	38.5	23.1		

TABLE VI
PERCEPTIONS ON THE USEFULNESS OF ITCS

E	S1	S2	S3	S4	S5	Mean	SD
E1	1	11	22	39	27	3.80	.993
E2	3	4	30	44	18	3.71	.906
E3	0	4	30	46	20	3.82	.801
E4	0	10	29	42	20	3.72	.894
E5	3	9	42	30	17	3.47	.985
E6	1	10	30	38	20	3.66	.945
E7	0	9	30	43	18	3.70	.868
E8	0	6	29	47	18	3.77	.817
E9	0	4	23	47	26	3.95	.815
E10	0	1	19	43	37	4.17	.760
Average	0.8	6.8	28.4	41.9	21.1		

B. Correlations

The results from Tables VII and VIII are summarized by Fig. 5. The interpretation of Fig. 5 combined with the initial hypotheses leads to the following results.

TABLE VII
CORRELATION NOT INVOLVING DEMOGRAPHICS

		B	C	D	E
B	Pearson Correlation	1	.401**	-.026	.228*
	Sig. (2-tailed)		.000	.782	.014
	N	115	115	115	115
C	Pearson Correlation	.401**	1	.144	.343**
	Sig. (2-tailed)	.000		.124	.000
	N	115	115	115	115
D	Pearson Correlation	-.026	.144	1	.510**
	Sig. (2-tailed)	.782	.124		.000
	N	115	115	115	115
E	Pearson Correlation	.228*	.343**	.510**	1
	Sig. (2-tailed)	.014	.000	.000	
	N	115	115	115	115

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

TABLE VIII
CORRELATIONS OF DEMOGRAPHICS AND OTHER VARIABLES

		B	C	D	E
Gender	Pearson Correlation	.011	-.055	-.016	.098
	Sig. (2-tailed)	.904	.557	.865	.297
	N	115	115	115	115
School Location	Pearson Correlation	-.020	.140	-.093	-.207*
	Sig. (2-tailed)	.833	.136	.321	.027
	N	115	115	115	115
Age	Pearson Correlation	.070	.112	-.016	.176
	Sig. (2-tailed)	.455	.233	.864	.060
	N	115	115	115	115
Grade	Pearson Correlation	.054	-.053	.076	.264**
	Sig. (2-tailed)	.563	.577	.422	.004
	N	115	115	115	115
Cell phone access	Pearson Correlation	.010	-.249**	-.008	-.083
	Sig. (2-tailed)	.913	.007	.930	.378
	N	115	115	115	115
Internet Access on Computer	Pearson Correlation	.496**	.248**	.111	.104
	Sig. (2-tailed)	.000	.008	.238	.268
	N	115	115	115	115
Preferred Subjects	Pearson Correlation	.227*	.173	.008	.221*
	Sig. (2-tailed)	.015	.065	.930	.018
	N	115	115	115	115
Computer Usage	Pearson Correlation	.349**	.169	-.047	.073
	Sig. (2-tailed)	.000	.071	.616	.438
	N	115	115	115	115
Indigenous Food consumption	Pearson Correlation	.106	.020	.198*	-.043
	Sig. (2-tailed)	.260	.831	.034	.645
	N	115	115	115	115
Indigenous Food place of consumption	Pearson Correlation	.019	.058	-.022	.041
	Sig. (2-tailed)	.840	.538	.817	.662
	N	115	115	115	115

**. Correlation is significant at the 0.01 level (2-tailed).
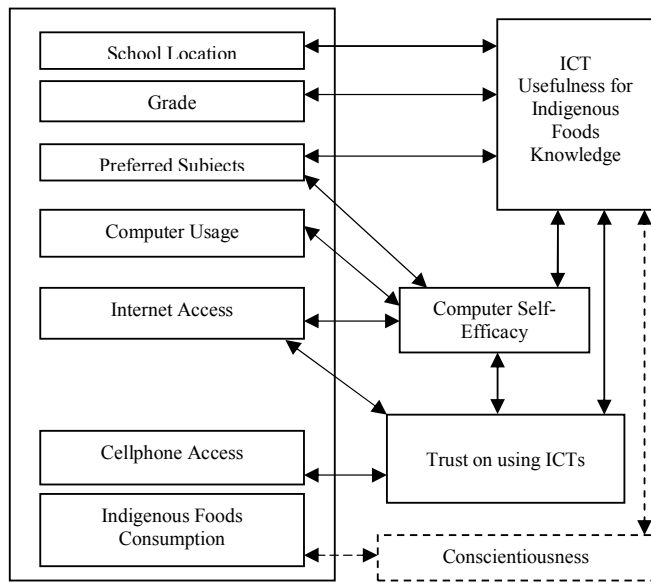*. Correlation is significant at the 0.05 level (2-tailed)

Fig. 5 The validated model

The new model presented by Fig. 5 represents the results on the testing of the hypotheses of this study.

Ra: There is a direct relationship between the school location, grade, and preferred subjects of a learner, and his or her perceptions on the usefulness of ICTs for learning about indigenous foods.

Rb: There is a direct relationship between the preferred subjects, computer usage, and the Internet access of a learner, and his or her computer self-efficacy levels.

Rc: There is a direct relationship between the Internet and cellphone access of a learner and his or her perceived trust in ICT systems.

Rd: There is a direct relationship between the indigenous foods consumption of a learner and his or her level of conscientiousness.

Re: There is a direct relationship between a learner's computer self-efficacy levels and his or her perceptions on the usefulness of ICTs for learning about indigenous foods.

Rf: There is a direct relationship between a learner's level of trust on ICT systems and his or her perceptions on the usefulness of ICTs for learning about indigenous foods.

Rg: There is a direct relationship between a learner's conscientiousness level and his or her perceptions on the usefulness of ICTs for learning about indigenous foods.

V. DISCUSSION AND CONCLUSION

The following points properly summarize the content of this paper on the perceptions on the usefulness of ICT for learning about Indigenous foods.

Learning and personality theories can explain the perceptions on the usefulness of ICT for learning about Indigenous foods [9]-[18].

It is possible to propose a model linking the following variables with regards to the use of ICTs to learn about indigenous foods: learners' demographics, their perceived computer self-efficacy levels, their perceived trust in ICTs, their perceived level of conscientiousness, and their perceptions on the usefulness of ICTs for learning about indigenous foods [23]-[27].

Demographic factors, computer self-efficacy levels, trust in the use of ICTs, and levels of conscientiousness all affect learners' perceptions on the usefulness of ICTs for learning about indigenous foods.

This study found that the levels of computer self-efficacy of learners are low even though computer self-efficacy influences learners' perceptions on the usage of ICTs for learning about indigenous foods. It is therefore recommended that more research be done on how to improve computer self-efficacy of learners.

REFERENCES

[1] R. Veenhoven, "Is life getting better? How long and happily do people live in modern society?," *European Psychologist,* vol. 10, p. 330, 2005.

[2] J. Burke, "The Impact of Science on Society," 1985.

[3] A. Trichopoulou, E. Vasilopoulou, K. Georga, S. Soukara, and V. Dilis, "Traditional foods: Why and how to sustain them," *Trends in Food Science & Technology,* vol. 17, pp. 498-504, 2006

[4] P. Ngulube, "Managing and preserving indigenous knowledge in the knowledge management era: challenges and opportunities for information professionals," *Information development,* vol. 18, pp. 95-102, 2002.

[5] A. Chikonzo, "The potential of information and communication technologies in collecting, preserving and disseminating indigenous knowledge in Africa," *The international information & library review,* vol. 38, pp. 132-138, 2006.

[6] J. Sithole, "The challenges faced by African libraries and information centres in documenting and preserving indigenous knowledge," *IFLA journal,* vol. 33, pp. 117-123, 2007.

[7] N. Gorjestani, "Indigenous knowledge for development," *Protecting AND Promoting Traditional Knowledge: Systems, National Experiences AND International Dimensions,* p. 265, 2004.

[8] Mayes and S. De Freitas, "Review of eLearning theories, frameworks and models," *JISC eLearning models desk study,* pp. 4, 2004.

[9] M. S. Chowdhury, "Human behavior in the context of training: An overview of the role of learning theories as applied to training and development," *Journal of Knowledge Management Practice,* vol. 7, 2006.

[10] A. Bandura, "Social cognitive theory: An argentic perspective," *Annual review of psychology,* vol. 52, pp. 1-26, 2001.

[11] A. Bandura, *Social foundations of thought and action*: Englewood Cliffs, NJ Prentice Hall., 1986.

[12] A. Bandura, "Self-efficacy: The exercise of control," Ed: New York: Freeman, 1997.

[13] E. T. Straub, "Understanding technology adoption: Theory and future directions for informal learning," *Review of Educational Research,* vol. 79, pp. 625-649, 2009

[14] A. Bandura and D. C. McClelland, "Social learning theory," 1977.

[15] H.Lotz-Sisitka, *(Re) views on Social Learning Literature: A Monograph for Social learning Researchers in natural resources management and environmental education*: Environmental Learning Research Centre, Rhodes University, 2012.

[16] B. Kim, "Social constructivism," *Emerging perspectives on learning, teaching, and technology,* pp. 1-8, 2001.

[17] B. De Raad and H. C. Schouwenburg, "Personality in learning and education: A review," *European Journal of personality,* vol. 10, pp. 303-336, 1996.

[18] V. V. Busato, F. J. Prins, J. J. Elshout, and C. Hamaker, "The relation between learning styles, the Big Five personality traits and achievement motivation in higher education," *Personality and Individual Differences,* vol. 26, pp. 129-140, 1998.

[19] O. P. John and S. Srivastava, "The Big Five trait taxonomy: History, measurement, and theoretical perspectives," *Handbook of personality: Theory and research,* vol. 2, pp. 102-138, 1999.

[20] G. M. Munguatosha, P. B. Muyinda, and J. T. Lubega, "A social networked learning adoption model for higher education institutions in developing countries," *On the Horizon,* vol. 19, pp. 307-320, 2011.

[21] S. N. Baraghani, "Factors influencing the adoption of internet banking," *Lulea University of Technology,* 2008.

[22] A. Punnoose, "Determinants of Intention to Use eLearning Based on the Technology Acceptance Model," *Journal of Information Technology Education: Research,* vol. 11, pp. 301-337, 2012.

[23] N. Sompong and C. Kheerajitt, "Development of Online Courseware on Thai Food Good Health," *Turkish Online Journal of Educational Technology-TOJET,* vol. 11, pp. 390-393, 2012.

[24] D. V. Rau and M.-C. Yang, "ELearning in Endangered Language Documentation and Revitalization," *Documenting and Revitalizing Austronesian Languages,* p. 111, 2007.

[25] D. E. Marcial, "Experiences in the Preservation of Local Knowledge and Indigenous Practices using eLearning Tools," *Malaysian Journal of Distance Education,* vol. 13, pp. 99-115, 2011

[26] A. A. Alyan, "An intercultural email project for developing students'intercultural awareness and language skills."

[27] M. B. Ligorio and K. Van Veen, "Constructing a successful cross-national virtual learning environment in primary and secondary education," *AACE Journal,* vol. 14, pp. 103-128, 2006.

[28] L. Naing, T. Winn, and B. Rusli, "Practical issues in calculating the sample size for prevalence studies," *Archives of Orofacial Sciences,* vol. 1, pp. 9-14, 2006.

[29] T. Teo and J. Hwee Ling Koh, "Assessing the dimensionality of computer self-efficacy among pre-service teachers in Singapore: A structural equation modeling approach," International Journal of Education and Development using ICT, vol. 6, pp. 7-18, 2010.

[30] D. H. McKnight, V. Choudhury, and C. Kacmar, "Developing and validating trust measures for e-commerce: an integrative typology," *Information systems research,* vol. 13, pp. 334-359, 2002.

[31] C. MacCann, A. L. Duckworth, and R. D. Roberts, "Empirical identification of the major facets of conscientiousness," Learning *and Individual Differences,* vol. 19, pp. 451-458, 2009.

[32] The department of basic education, "Further education and training phase: Curriculum and Assessment Policy Statement grade 10-12 Hospitality studies, "*South African National Curriculum statement,* 201.