ajfand SCHOLARLY, PEER REVIEWED
AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT
Volume 14 No. 3
May 2014
PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST
ISSN 1684 5374

UNDERGRADUATE MODULE ON NUTRITION EDUCATION AND COMMUNICATION FOR AFRICA: PROFILES OF POTENTIAL STUDENTS

Wijesinha-Bettoni R[1*], Jeong KY[1], Sherman J[1], Cham B[1], Jennings A[1], Alvarez C[1] and E Muehlhoff[1]

Ramani Wijesinha-Bettoni

Ellen Muehlhoff

*Corresponding author email: Ramani.WijesinhaBettoni@fao.org

[1]Nutrition Education and Consumer Awareness Group, Nutrition Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, 00153 Rome, Italy.

ajfand SCHOLARLY, PEER REVIEWED AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT Volume 14 No. 3 May 2014 PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST ISSN 1684 5374

ABSTRACT

To be adequately nourished, individuals need to have access to sufficient and good quality food. They also need to have an understanding of what constitutes a good diet for health, and have the skills and motivation to make good food choices. Nutrition education equips people to make such choices. Building countries' capacities to provide effective nutrition education and promote healthy diets is part of the work carried out by the Nutrition Division of the Food and Agriculture Organization (FAO) of the United Nations. The FAO Effective Education for Nutrition in Action (ENACT) project is assisting countries to develop institutional and professional capacities in nutrition education in Africa by producing a basic module on nutrition education at undergraduate level for use by national universities and other training institutions. The course materials will be available for online, face-to-face or blended use and are being piloted and revised to improve and adapt them to local context and consumer need. Creating a learner profile is an accepted step in course design, particularly important in situations where course developers do not have close contact with the students, as in this case. The ENACT learner profile was compiled from replies to a short questionnaire of 32 questions administered to a sample of students. The respondents were the actual piloting students, or were representative of those who would be piloting the course. One hundred and twenty eight responses were received from universities in Ethiopia, Ghana, Kenya, Nigeria, Tanzania and Uganda, approximately 20 per university. On average, respondents answered 96% of the questions in the questionnaire. Information was obtained on areas such as students' social/cultural interests; food and nutrition experience and expertise; food and eating habits; ideas of nutrition education and training in nutrition education; and study preferences. In addition, the profile of a typical learner in each country (including age, gender and information on socio-economic background, urban/rural background and English proficiency) was compiled from the questionnaires and from additional information supplied by the tutors. The study findings have helped the course developers to select course content and structure learning activities to meet students' needs and circumstances.

Key words: professional training, nutrition education, Africa

ajfand SCHOLARLY, PEER REVIEWED AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT Volume 14 No. 3 May 2014 PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST ISSN 1684 5374

INTRODUCTION

The need for improved nutrition and dietary practices is emphasized in the African Regional Strategy 2005-2015 [1]. In addition to access and availability of nutritious food, people need to know what constitutes a healthy diet and how to make good food choices. Nutrition education, defined as "any combination of educational strategies, accompanied by environmental supports, designed to facilitate the voluntary adoption of food choices and other food- and nutrition-related behaviours conducive to health and well-being....", helps people to make such choices [2]. The value of effective nutrition education and communication in tackling nutrition issues is strongly supported by the literature, especially in mother and young child feeding and as a complement to agricultural/food and nutrition security interventions [3-5].

Although nutrition education has traditionally been based on knowledge transmission methodologies, information dissemination alone often has little effect in achieving lasting dietary change [2]. In contrast, effective nutrition education is action-oriented, and needs to be carried out by people who are suitably trained or who at least understand the process. "Professional training in nutrition education and communication" means learning where and how to "do" nutrition education, not to be confused with learning about nutrition (subject study). Like nutrition education (NE) which puts a special emphasis on behaviour change, NE training too should have an applied orientation, in other words, "learning to do". Thus it deals with methodologies and approaches in all forms of promoting healthy eating: behaviour change, communication, health promotion, community counselling, social marketing, as well as formal nutrition education, which cover diverse settings.

Need for professional training in Nutrition Education in Africa

In 2010 FAO carried out an assessment of capacity and needs for professional training in nutrition education and communication (NEAC) in Africa [6]. This involved a review of the literature and case studies in seven African countries. The findings showed that suitable approaches and relevant training were lacking or irregularly available in these countries. Respondents saw an urgent need for developing and adopting a suite of professional training courses at undergraduate, postgraduate and extension levels as a framework for comprehensive capacity building. FAO began a follow-up project named ENACT (Education for effective nutrition in action) in January 2012. A course outline for a competency-based course was developed, presented to various experts in the field at a workshop held in Ghana in 2012, and subsequently revised [7]. The ENACT project is producing a basic module at undergraduate level, and supporting national universities and other training institutions in pre-testing and disseminating this module. The course materials will be available for online, face-to-face or blended use, and are being piloted and revised to improve them and to adapt them to local context and consumer need.

ajfand SCHOLARLY, PEER REVIEWED AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT Volume 14 No. 3 May 2014 PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST ISSN 1684 5374

Need for a Learner Profile

Creating a learner profile prior to designing a course is an accepted step in course design [8, 9]. Apart from students' existing knowledge and skills, areas on which data are normally collected include personal characteristics, study skills and study methods, motivation and ability to act. A learner profile is particularly important in situations where course developers do not have close contact with the students, as is the case with the ENACT module. The module is being developed at a distance, with consultation with the prospective tutors at three main points of the course development (pre-piloting workshop, during piloting, and after piloting). Although the course will be taught face-to face in some countries, the subject of the proposed module and in particular the practical orientation, are in some cases new to the curricula and methodologies of the partner universities. Thus, tutors are unlikely to have the time and perhaps the necessary confidence/experience to adapt the material *ad hoc.*

In addition to being of use to course developers, a learner profile can also be useful for tutors to help them get to know their audience better, and for students in raising awareness of their own study approaches and needs. However, it must be kept in mind that needs analysis needs to be a continuous process: it is not something that can be done once (at the initial stages of course development only), but has to be continuously revisited, and the course modified to fit new needs that arise as the course proceeds. Thus, further adaptation of the ENACT module as a result of the piloting is anticipated.

Objectives of the present study

The scope of this enquiry was dictated by the fact that the students were undergraduates with little or no working experience. Therefore, a task analysis (looking at job descriptions or analysing working needs) was not carried out, although students were asked about any work experience and jobs they hoped to get. The aim was to compile a profile of students piloting the ENACT course by using the findings from a short questionnaire self-administered by a sample of students.

MATERIALS AND METHODS

Development of the student questionnaire:

Part of the previous FAO capacity and needs analysis included a "gap analysis" of nutrition knowledge/training needs, via a questionnaire which targeted students studying nutrition education or related courses. The questionnaire included both questions covering a learner profile (such as personal motives and study preferences) and those covering a needs analysis of the course to be developed (such as desirable content, approaches and delivery mode). This questionnaire was used to collect data from 94 students from Botswana, Egypt, Ethiopia, Ghana, Malawi, Nigeria and Tanzania.

Seven of the 14 questions in the original questionnaire were retained in the current questionnaire. The draft questionnaire was reviewed by the original tutors and other participants at the ENACT Curriculum Development Workshop [7]. The participants were asked to take on the role and outlook of their own students in order to answer the

ajfand SCHOLARLY, PEER REVIEWED AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT Volume 14 No. 3 May 2014 PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST ISSN 1684 5374

questions. The questionnaire was further revised, removing potentially sensitive/personal questions, as suggested by the workshop participants. In October 2012, the revised draft was pre-tested on a small group of seven student interns at FAO. The pre-testing confirmed that the questionnaire presented no problems in difficulty, content, wording and sequence of questions, and clarity of instructions. The questionnaire was thus finalized.

This questionnaire (supplementary material) had 32 questions divided into: general (10 questions); social/cultural life (2); food and nutrition experience and expertise (5); food and eating habits (9); ideas of nutrition education and training in nutrition education (4); study preferences (1), and any additional information (1). The questions were a mix of open- and closed-ended (multiple-choice or yes/no), with some of the latter having an open "other" option.

Identification of possible respondents and distribution of the questionnaire

Possible respondents were identified by purposive sampling. The ENACT tutors in the piloting countries were asked to find a sample of approximately 20 students who were, to the extent possible, representative of those who would be piloting the course. The questionnaires could be completed by students online using the web based survey site Google Docs, or through a Word document. An initial deadline of 30th November 2012 was set for this task. Table 1 shows the number of respondents from each country.
The tutors were asked to supply some information on the students' age, gender balance, background (socio-economic and rural/urban), study skills and job prospects. After an initial analysis of the student and tutor questionnaires, tutors were sent additional questions to clarify or supply missing information.

Ethical considerations

The response to the questionnaire was voluntary. The questionnaire assured anonymity, and gave the option of skipping any questions the students did not wish to answer.

Data Analysis

Data received in Word format were entered into Google Docs for ease of analysis. Responses to some questions were transferred to Excel in order to analyse the quantitative aspects of the questions and to summarize the narrative responses in the open-ended questions. The responses were separated question-by-question. Based on the topic of each question, selected questions were classified according to the six categories used in the questionnaire. The completed questionnaires were read independently by two of the researchers, who agreed on the interpretation of answers. On average, respondents answered 96% of the questions in the questionnaire.

RESULTS

Bio data of typical students

Student groups are assumed to represent the target population hence descriptions are given for "the typical learner". In the case of Ethiopia and Uganda, those canvassed were themselves the prospective students.

ajfand SCHOLARLY, PEER REVIEWED AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT Volume 14 No. 3 May 2014 PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST ISSN 1684 5374

Ethiopia: A typical learner is 18 years old, with 80% of students being male. The student is likely to be from a low-middle income family with 70% having an urban background.

Ghana: Two different groups are possible: the first in their early twenties, the second group in their early 30s-early 40s. Sixty percent of the students are female. The majority have middle income backgrounds. Although all will have some rural connections (.such as place of birth/family hometown), the majority currently reside in urban areas.

Kenya: A typical learner is 22 years old or is a mature student (>35 years). The ratio of male to female students is equal. Learners are from the various socioeconomic status groups. Rural and urban backgrounds are equally likely.

Nigeria: A typical learner is 19 years old, with 90% of students being female. The majority of students are from middle income families. Sixty percent of the students have an urban background.

Tanzania: A typical learner is 30 years old. Male and female students are equally likely. While the majority are school leavers, ~17% are mature students who already have jobs. About 85% of the students are from an urban background. Information is not available on socio-economic status.

Uganda: A typical learner is 20 years old, with an equal ratio of male and female students. The student is fairly likely to be from a low income background. Sixty percent of the students have urban backgrounds.

Motivation

Most of the students had interpreted the question on main interests to mean "aims in life". As this was an open question, the answers were separated into five categories. The two main categories for each country were: Ethiopia: (1) career/work-related and (2) helping others; Ghana: (1) career/work-related and (2) other; Kenya: (1) personal success/money and (2) other; Nigeria: (1) career/work-related and (2) personal success/money ; Tanzania: (1) personal contentment/happiness/good life and (2) career/work-related ; and Uganda: (1) helping others and (2) career/work-related and personal success/money (equal).

Answers to the question on leisure activities were categorized into: a) sports and exercise, b) reading, c) watching TV/films, d) music, e) cooking, f) travelling, g) interacting with people/friends, and h) other.

The two main leisure activities reported for each of the countries were as follows:
Ethiopia: (1) exercise; (2) reading; watching TV/films
Ghana: (1) reading; (2) watching TV/films
Kenya: (1) watching TV/films; (2) exercise;
Nigeria: (1) other; (2) reading;
Tanzania: (1) other; (2) interacting with people/friends;
Uganda: (1) exercise; (2) watching TV/films.

ajfand SCHOLARLY, PEER REVIEWED AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT Volume 14 No. 3 May 2014 PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST ISSN 1684 5374

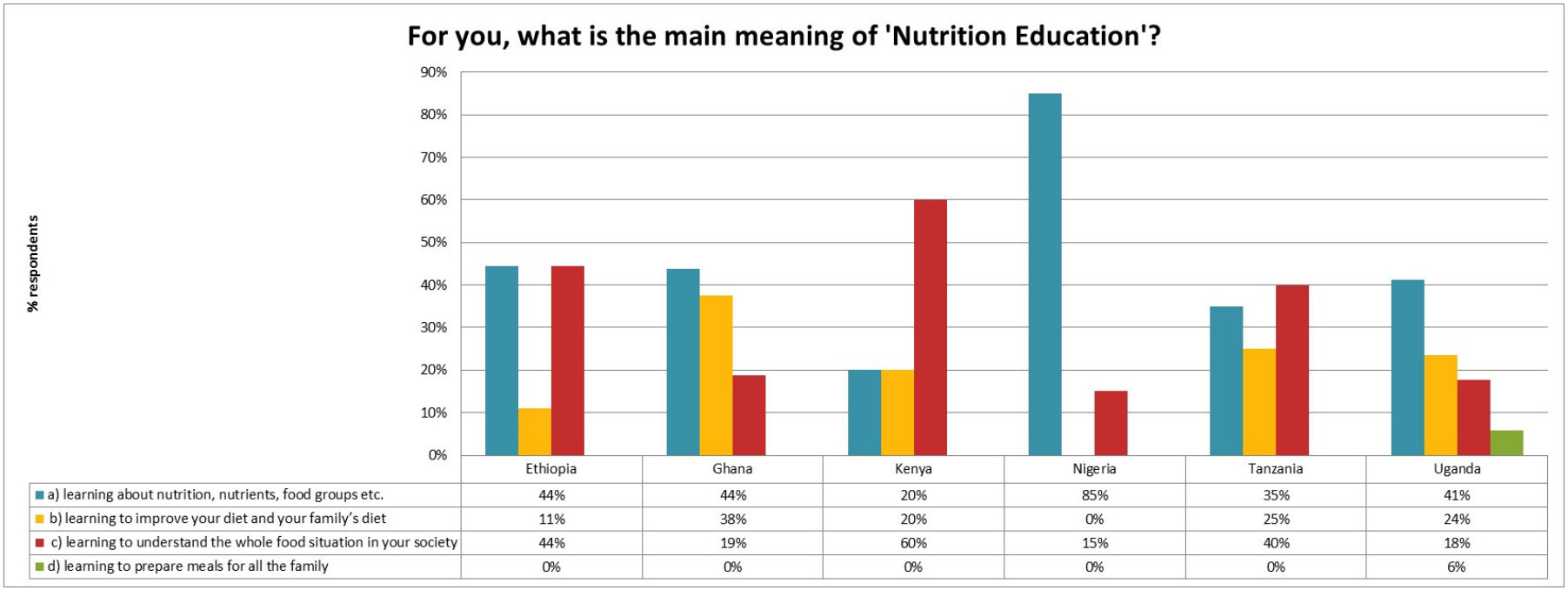
When the whole student sample was considered, the main leisure activities were interacting with people/friends, watching TV/films and exercise. However, there was a wide variation for exercise (>30% of the students in Ethiopia, Kenya and Uganda, but <6% in Ghana and Tanzania). Cooking was cited most by Ghanaian (25%) and Kenyan (20%) students, and did not feature in the leisure activities of Ethiopians and Ugandans. Travel was mentioned only by Kenyan (32%) and Nigerian (10%) students.

Learners' ideas of NE and training in NE

Regarding the meaning of nutrition education (Figure 1a), on average, less than 20% of the student sample chose learning to improve diets (answer b), while 45% of the students thought that nutrition education was learning about nutrition (answer a). In the present context, answer b would have been the most suitable answer, and answer a the least suitable answer.

Regarding the meaning of training in nutrition education (Figure 1b), the majority of students expect training in nutrition education to cover learning about how to enable people to improve their diet, although 14% of the students still think that the training would involve learning about nutrition, while 19% appear to think of NE in terms of information, education, communication activities (IEC), as they selected learning about what to *tell* people about food and diet.

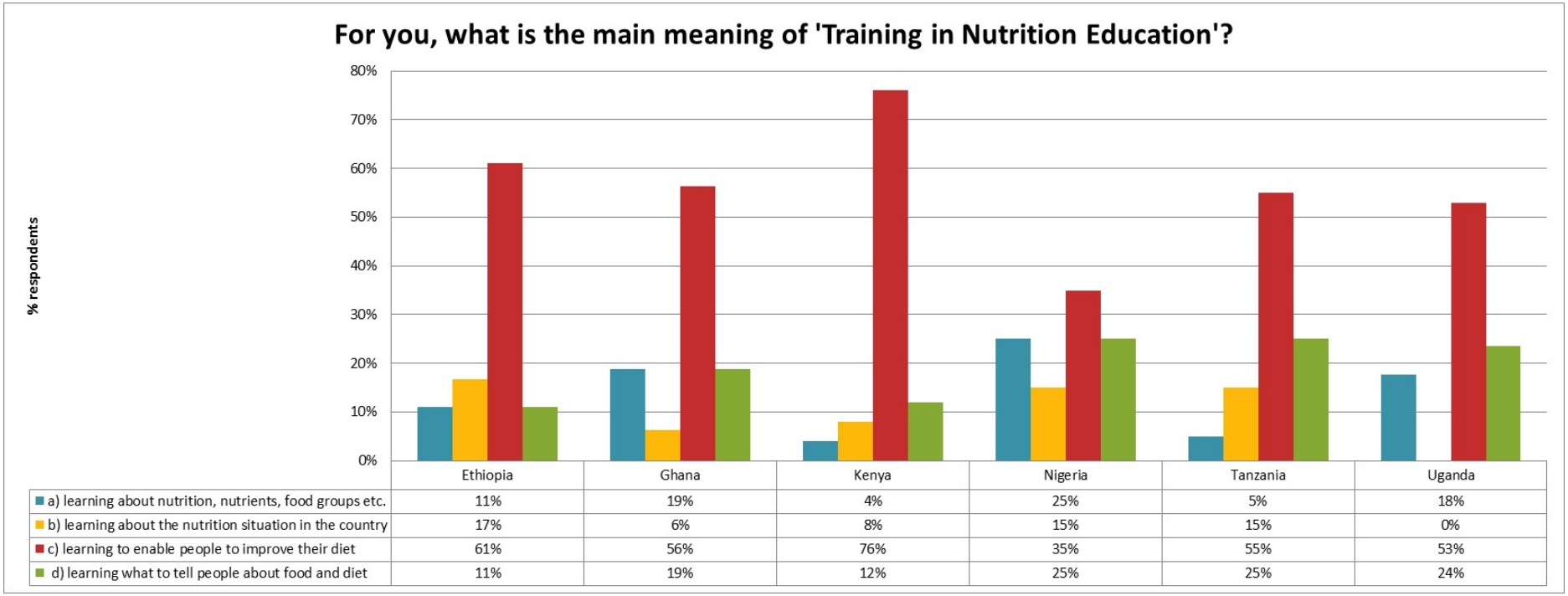
ajfand SCHOLARLY, PEER REVIEWED
AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT
Volume 14 No. 3
May 2014
PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST
ISSN 1684 5374



	Ethiopia	Ghana	Kenya	Nigeria	Tanzania	Uganda
a) learning about nutrition, nutrients, food groups etc.	44%	44%	20%	85%	35%	41%
b) learning to improve your diet and your family's diet	11%	38%	20%	0%	25%	24%
c) learning to understand the whole food situation in your society	44%	19%	60%	15%	40%	18%
d) learning to prepare meals for all the family	0%	0%	0%	0%	0%	6%

Figure 1a): The main meaning of "nutrition education"

ajfand SCHOLARLY, PEER REVIEWED
AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT
Volume 14 No. 3
May 2014
PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST
ISSN 1684 5374



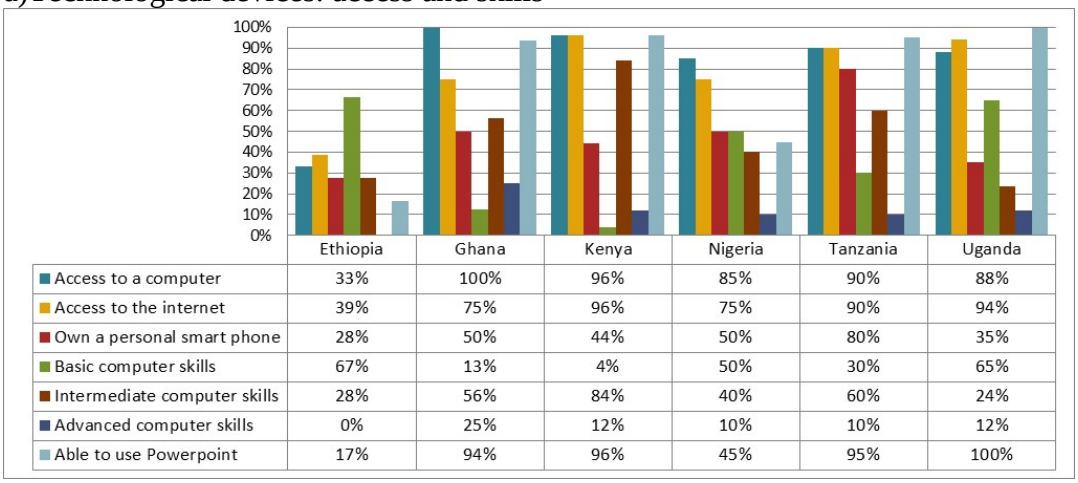
	Ethiopia	Ghana	Kenya	Nigeria	Tanzania	Uganda
a) learning about nutrition, nutrients, food groups etc.	11%	19%	4%	25%	5%	18%
b) learning about the nutrition situation in the country	17%	6%	8%	15%	15%	0%
c) learning to enable people to improve their diet	61%	56%	76%	35%	55%	53%
d) learning what to tell people about food and diet	11%	19%	12%	25%	25%	24%

Figure 1b): The main meaning of "Training in nutrition education"

ajfand SCHOLARLY, PEER REVIEWED
AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT
Volume 14 No. 3
May 2014
PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST
ISSN 1684 5374

Skills, access, social environment

a)Technological devices: access and skills



	Ethiopia	Ghana	Kenya	Nigeria	Tanzania	Uganda
Access to a computer	33%	100%	96%	85%	90%	88%
Access to the internet	39%	75%	96%	75%	90%	94%
Own a personal smart phone	28%	50%	44%	50%	80%	35%
Basic computer skills	67%	13%	4%	50%	30%	65%
Intermediate computer skills	28%	56%	84%	40%	60%	24%
Advanced computer skills	0%	25%	12%	10%	10%	12%
Able to use Powerpoint	17%	94%	96%	45%	95%	100%

Figure 2: Access to multimedia technology and level of computer skills

A wide variation in access and abilities relating to technology is evident (Figure 2). Both access and ability were lowest in Ethiopian students and highest in Ghanaian students. With the exception of Ethiopia, most of the piloting students can be expected to have access to a computer and the internet, although the quality, regularity and cost of access may vary.

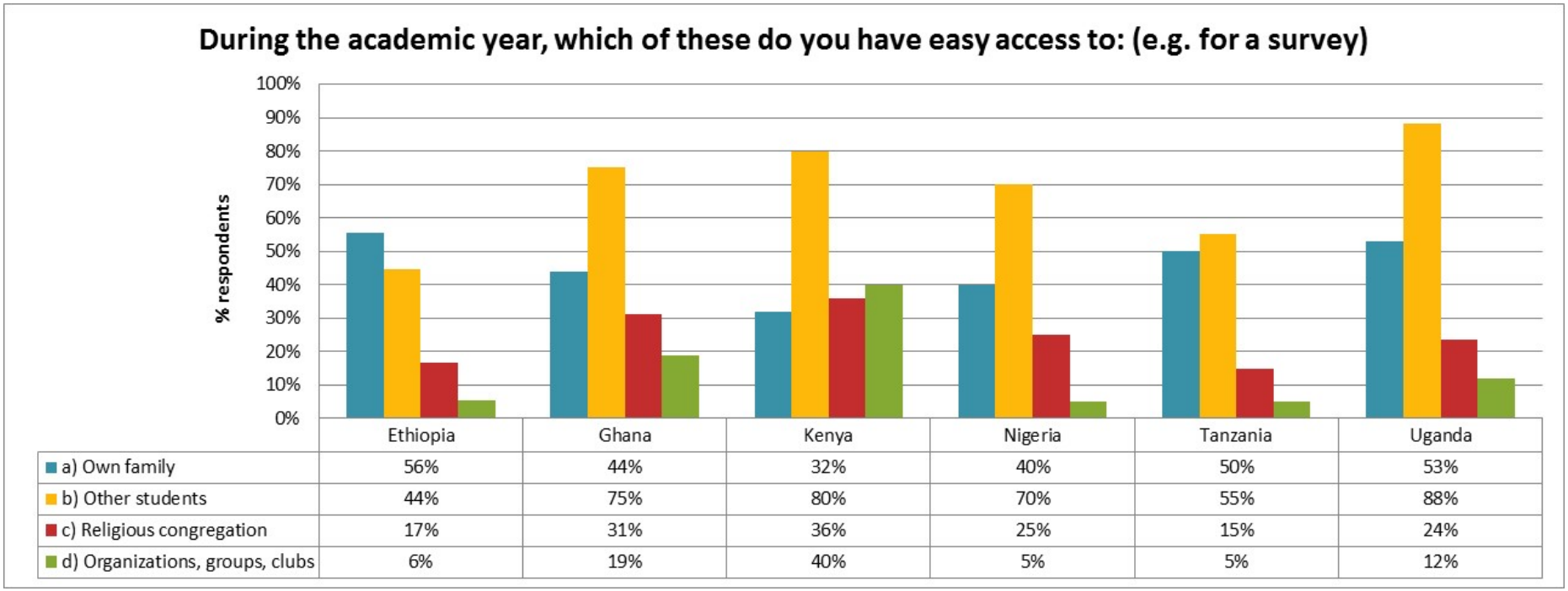
b) Access to/interest in media sources

Students reported on whether they regularly a) watch TV, b) listen to the radio, c) read the newspaper, d) read books (apart from coursebooks) and e) use the internet. In general, reading books (ranging from 38% in Ghana to 56% in Ethiopia) and watching TV (ranging from 25% in Nigeria to 84% in Kenya) featured prominently across the countries. Using the internet varied from 28% (Ethiopia) to 100% (Kenya), with >80% of students from Uganda and Ghana also reporting that they did this regularly. Radio was popular mainly in Uganda (82%) and Kenya (72%), and newspapers in Kenya (60%) and Tanzania (50%), and least popular in Ethiopia (6% for both radio and newspapers).

c) Access to family/friends

Students were asked about groups of people they could easily access, for example, to conduct a survey or for other enquiries, discussions or comparisons (Figure 3). Access to family and to other students dominated. A few of the students specified which organizations/groups/clubs they had access to, and these included the Nutrition and Food Science student society (Ghana), the university nutrition club (Kenya), sports clubs (Kenya) and HIV/AIDs club (Ethiopia).

ajfand SCHOLARLY, PEER REVIEWED
AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT
Volume 14 No. 3
May 2014
PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST
ISSN 1684 5374



	Ethiopia	Ghana	Kenya	Nigeria	Tanzania	Uganda
a) Own family	56%	44%	32%	40%	50%	53%
b) Other students	44%	75%	80%	70%	55%	88%
c) Religious congregation	17%	31%	36%	25%	15%	24%
d) Organizations, groups, clubs	6%	19%	40%	5%	5%	12%

Figure 3: Access to family/friends to conduct a survey

ajfand SCHOLARLY, PEER REVIEWED
AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT
Volume 14 No. 3
May 2014
PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST
ISSN 1684 5374

Study skills and study methods

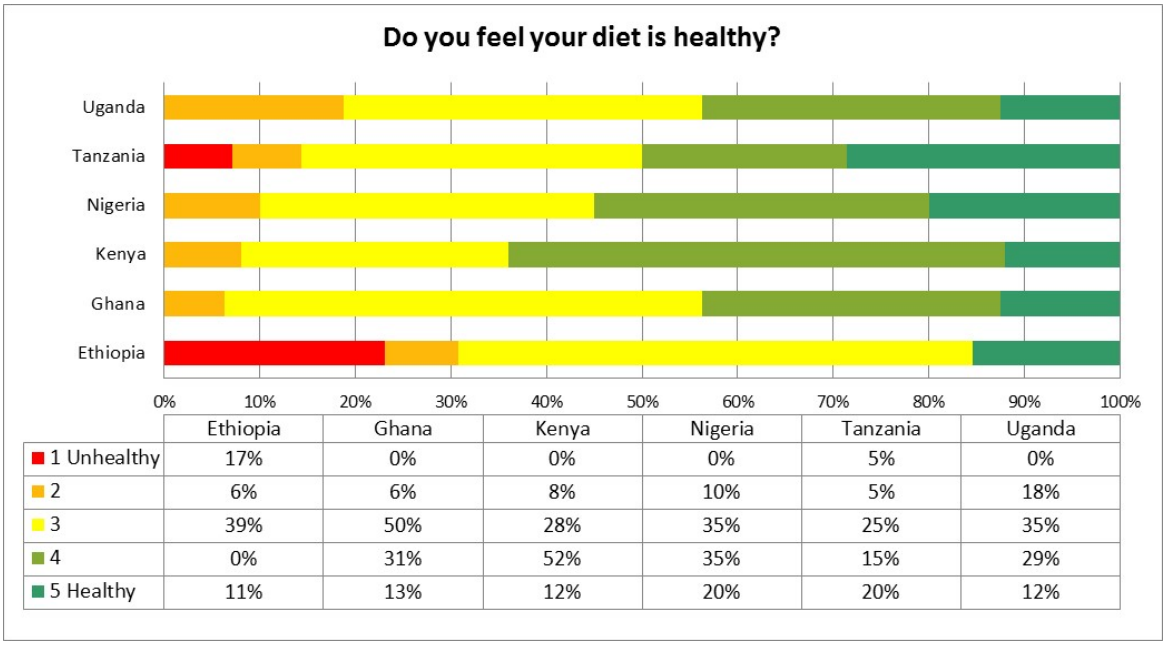
Students were asked which study activities best help them to learn, and given a choice of 11 options, including "other". As they could pick as many options as they liked, answers were difficult to interpret (results not shown). However, it was clear that writing assignments and individual activities/exercises are not very popular. Activities that require talking to people outside may also require some motivation. Students from Ethiopia are not keen readers.

Students' food and nutrition experience and expertise

Although most students said that they knew how to grow food (89% of sample) and preserve food (92% of sample), only 56% reported that they cooked regularly (varying from 28% in Ethiopia to 88% in Kenya). Out of the students who reported knowing how to grow food, on average nearly 70% said that they knew how to grow fruits and vegetables (varying from 36% in Ethiopia to 100% in Kenya) while an equal number reported knowing how to grow cereals/staple food (varying from 45% in Ethiopia to 82% in Nigeria).

The majority of students reported that when shopping, they paid most attention to the nutritional value of foods (71% of the sample), followed by price (56%) and expiry date (52%). The food brand was considered important mainly in Uganda (47%) and Tanzania (20%), while in the other countries less than 6% of students paid attention to it.

Students were asked to rate their diets from 1 (unhealthy) to 5 (healthy) (Figure 4)



	Ethiopia	Ghana	Kenya	Nigeria	Tanzania	Uganda
1 Unhealthy	17%	0%	0%	0%	5%	0%
2	6%	6%	8%	10%	5%	18%
3	39%	50%	28%	35%	25%	35%
4	0%	31%	52%	35%	15%	29%
5 Healthy	11%	13%	12%	20%	20%	12%

Figure 4: Students' opinion of own diet

ajfand SCHOLARLY, PEER REVIEWED
AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT
Volume 14 No. 3
May 2014
PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST
ISSN 1684 5374

In their opinion, very few of the students have unhealthy diets (4% of the study population), while 15% thought they had healthy diets. The majority ranked themselves as having an average-to healthy diet (yellow and light green bars).

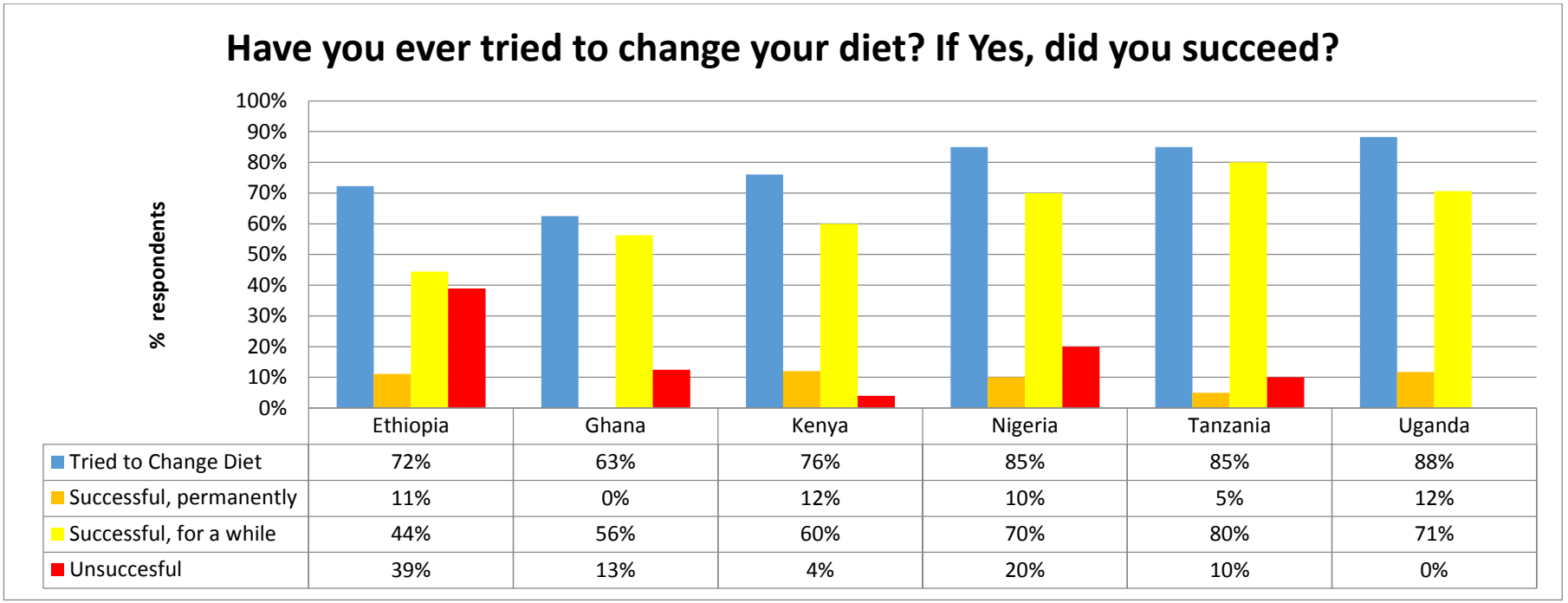
The students were also asked specific questions to probe diet quality. These included where they ate most often (canteen; home; restaurant/café/shop; various other take-away food; other). With the exception of Tanzania, most students ate mainly at home: Ethiopia (75%), Ghana (94%), Kenya (84%) and Nigeria (80%). Ugandan and Tanzanian students were most likely to eat away from home, 50% and 35%, respectively, with the Tanzanian students mainly eating from the canteen (65%). The consumption of food from restaurants (35%) and take-away food (29%) was highest among the students from Uganda.

All the Ethiopian and Tanzanian students reported that they ate breakfast every day. More than 80% of students from Ghana, Kenya and Uganda also indicated that they ate breakfast. However, only 55% of Nigerian students reported eating breakfast.

The students were asked how many times a day they eat fruits. The answers ranged from 0.7 times/day (Ethiopia) to 1.7 times (Kenya and Tanzania). Regarding consumption of fizzy drinks, the answers varied from 0.4 times per day (Ghana and Kenya) to 1.3/day (Tanzania).

Figure 5 shows the results of students attempts to change their diet. From the total student sample, 78% have tried to change their diets, with 14% of such attempts being unsuccessful and 8% resulting in a lasting change. Most of the attempts resulted in a temporary change.

ajfand SCHOLARLY, PEER REVIEWED
AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT
Volume 14 No. 3
May 2014
PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST
ISSN 1684 5374



	Ethiopia	Ghana	Kenya	Nigeria	Tanzania	Uganda
Tried to Change Diet	72%	63%	76%	85%	85%	88%
Successful, permanently	11%	0%	12%	10%	5%	12%
Successful, for a while	44%	56%	60%	70%	80%	71%
Unsuccesful	39%	13%	4%	20%	10%	0%

Figure 5: Attempts to change diet and results

ajfand SCHOLARLY, PEER REVIEWED AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT Volume 14 No. 3 May 2014 PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST ISSN 1684 5374

Prior work experience and future jobs

The students were asked about any work experience (paid or voluntary) that they have had. The answers were classified into: a) nutrition/health related b) teaching/research c) other occasional jobs and d) never worked. The majority of Nigerian and Tanzanian students (55%) have not yet had any work experience. Meanwhile, in Kenya and Ghana, most students have had some work experience.

Nutrition/health/agriculture related work has been done by 40% of students in Kenya and 31% in Ghana. The numbers for Uganda, Ethiopia and Tanzania are 29%, 11% and 10%, respectively. In addition, many students have done teaching/research jobs (50% in Ghana, 40% in Kenya, 35% in Tanzania, 12% in Uganda), although only 5% in Nigeria and none in Ethiopia.

The students reported their job preferences for the future. Responses were classified into four categories. Not surprisingly, the largest group of students would like to have jobs in the nutrition/health professions (39% of the sample, ranging from 15% in Nigeria to 68% in Kenya), while 20% would like teaching/research jobs (ranging from 6% in Uganda to 38% in Ghana).

The tutors were asked what type of future employment was likely for their students. The responses generally fell into the same categories. Other possibilities suggested by the tutors included working for industry (food, telecommunication and banking industries); and as food service managers in hospitals and other catering and food related institutions.

DISCUSSION

Please note, in the Results section above, percentages sometimes add to more than 100% because more than one answer was possible for some questions. The implications for course development based on the findings of this study are briefly discussed below.

The age range of the students taking the course will be fairly wide, from young school leavers (Ethiopia and Nigeria) to mature students (Tanzania, Ghana), who will already have life/work experiences to draw on. This suggests offering a choice of activity. The balance of urban-rural in some countries is encouraging, enabling students to share experiences of different settings and practices in relation to food and diet.

The students' English literacy level was gauged using answers to open questions, and information received from tutors. From this, it is anticipated that Ethiopian students may encounter problems in speaking and writing in English. The level of language used in the materials and the level of reading tasks needs to take this into account. Tutors from Ethiopia also indicated that some of the material may need to be translated into Amharic. Tutors were asked to keep a record of any translations that were needed when the course was piloted, as such information can help with future course development. At the time of writing, piloting of the ENACT module has just been successfully completed in the seven countries.

ajfand SCHOLARLY, PEER REVIEWED AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT Volume 14 No. 3 May 2014 PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST ISSN 1684 5374

Each of the course units includes an "Outside activity" where students have to find out relevant local information; several of these require that students interview people, conduct surveys or work with a group of outside people. It was good, therefore, to know that over half of the students would have access to either family or friends for such purposes. Regarding ICT access, only Ethiopian students are expected to be at a disadvantage. However, piloting students will be given a hardcopy version of all essential material, while activities requiring internet access will be made optional.

The survey also probed students' relevant skills and experience that can be utilized in the course. Especially students from Kenya and Ghana can be expected to have some prior work experience in nutrition/health/agriculture related work which can be drawn on during the course. With the exception of Ethiopian and Ugandan students, >50% of the students ranked their ICT skills as intermediate/advanced. Hence students will have the option of preparing either a PowerPoint presentation or a poster/text for some activities.

As the majority of students appear to be dedicated to improving their career possibilities, a high level of motivation for the course can be expected. The main leisure activities appear to be interacting with people/friends, watching TV/films and exercise. These are all good points for the course, as they are strong areas for metaphor and direct experience, and can be utilized for group work and for comparing peer perspectives.

With regard to learners' concepts of NE and training in NE, the aims of the course, and the reasons behind these aims will need to be clearly explained to the students from the start in order to expand the concept of NE as nutrition information plus communication. Naturally, a major part of the course will cover methodological issues relating to planning and designing a NE intervention. The module also includes a unit "Explaining food, diet, and healthy eating", which has a strong focus on communicating these concepts to the general public. The communications element has been built into all the units (for example, conducting interviews and surveys, and leading group discussions).

If students are able to cook and shop intelligently, they will have a better idea of what people will and won't eat and why, of changes in food habits, of (probably) feeding young children and families. Most students knew how to grow food, although only just over half cooked regularly. This ties in with the student interests/leisure activities, where cooking was cited most by Ghanaian and Kenyan students, and did not feature in the leisure activities of Ethiopian and Ugandan students. This may reflect where students live during term time or their eating arrangements during term time (for example, 65% of Tanzanian students reported that they ate canteen food). These circumstances may determine what proposed "outside activities" are feasible.

It was encouraging to note that the majority of students (71%) reportedly paid most attention to the nutritional value of foods when shopping. Shopping skills are an important part of NE programmes, for example, the USDA funded Expanded Food and Nutrition Education Program (EFNEP) teaches adults to make nutritious food choices for their families and to spend their food dollars wisely [10]. Students' own

experiences of diet change will be useful in helping them to analyze and address the barriers to people successfully improving their diets.

Individual study and writing assignments were the least preferred study options, with students preferring small-group activities/exercises with friends. As the ENACT course involves a lot of self-study, students will be given the option of doing many of the activities as pair/group work, although some activities will need to be done individually, for assessment purposes.

Limitations of study

The most accurate source of information would have been the actual learners who will be piloting the ENACT course, which was the case for Ethiopia and Uganda. However, since the course had to be prepared in advance, this was not always an option. Therefore, an attempt was made to collect similar data from existing groups. However, the authors are aware that even though the tutors were briefed to find student groups as similar to the actual students as possible, it is not always possible to safely extrapolate data from existing learner groups to future groups. Although structured instruments exist for measuring preferred learning and cognitive styles (for example, the VARK model measuring four perceptual preferences: visual (V), aural (A), read/write (R), and kinesthetic (K), also referred to sometimes as the VAK model (visual-auditory-kinesthetic model), they were not used in the current study because an inexpensive, easy to obtain snapshot of the potential students was the goal.

CONCLUSION

The learner profile has given the course developers a good idea of the potential ENACT students, and insights on how to select course content and structure learning activities to meet students' needs and circumstances. Some of the questions were much more productive and revealing than others, and enabled the course developers to identify questions that could have been better worded and additional questions that should have been included. The course developers will be investigating how tutors might use the information gathered here, and whether such a survey should be recommended to future ENACT tutors. Some of the findings contradicted tutors' impressions, further supporting the need for compiling a learner profile in this manner. In addition, getting an idea of the potential students in this way has helped to motivate and focus the efforts of the course writers. Some insightful comments from the learners are shown in Box 1.

Although the findings presented in this paper are qualitative and cannot be representative of Africa as a whole, the authors believe that this study is valuable because there are few surveys which cover the undergraduate needs of as many as six countries in this particular field.

ACKNOWLEDGMENTS

We are very grateful to the German Ministry of Food and Agriculture (BMEL), who have funded the ENACT project. Our sincere thanks to the all the students who completed the questionnaires, and for the tutors for help in collecting the data: Mr Esayas Bekele and Ms Getenesh Teshome (Hawassa University, Ethiopia); Dr Esi

ajfand SCHOLARLY, PEER REVIEWED AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT Volume 14 No. 3 May 2014 PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST ISSN 1684 5374

Colecraft and Dr Gloria Otoo (University of Ghana); Prof. Judith Kimiywe and Dr Dorcus Mbithe (Kenyatta University, Kenya), Prof. Ignatius Onimawo and Mr Charles Nkwoala (Michael Okpara University, Nigeria); Prof. Joyce Kinabo and Ms Nyamzi Bundala (Sokoine University, Tanzania) and Prof. Archileo Kaayaand Dr Christine Magala-Nyago (Makerere University, Uganda).

Box 1

Some insightful comments from students

Tanzania: "Motivation and can-do-spirit should be included alongside nutritional education as most people have heard over and over again about the right foods to eat but lack the zeal and will-power to change their ways of eating and still fall back to their previous eating habits"

Uganda: "Good nutrition leads to good health, so to live longer, eat well."

"The nutrition situation in communities is so alarming, so more training should be done to reach out to people in the communities"

Ethiopia: "Ethiopia is an underdeveloped country. The main problem is the poverty—lack of food and (*poor*) nutritional status. Therefore, everyone (especially universities) should give more attention to food security through training new generations in food processing technology and human nutrition for the (*good of the*) country and sustainable health".

Nigeria: "We should first consider the culture of the community, food available to them, how they process and preserve these foods, what nutrients these foods provides, their growth rate and development and finally how to improve on these to provide a balanced diet".

"People think studying Food Science or Nutrition is all about learning how to cook. There is need for more education. It is affecting us as students (*too*)".

Ghana: "I will like to (*ask*) the global nutrition community to help erase the perception that nutrition is a female profession/cooking, and also to help project food-based strategies to improve nutrition".

ajfand SCHOLARLY, PEER REVIEWED AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT Volume 14 No. 3 May 2014 PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST ISSN 1684 5374

Table 1: Participants[1]

Country	Institute	No. of Student responses
Ethiopia	Hawassa University	20
Ghana	University of Ghana	20
Kenya	Kenyatta University	20
Nigeria	Michael Opkara University	24
Tanzania	Sokoine University of Agriculture	20
Uganda	Makerere University	24

[1] Although Botswana was also contacted, students were not able to complete the questionnaires on time.

REFERENCES

1. **African Union** African Regional Strategy 2005-2010. 2nd Ordinary Session of The Conference of African Ministers of Health (CAMH2) Gaborone, Botswana 10 – 14 October 2005 Available at: http://www.africa-union.org/Social%20Affairs/African%20Ministers%20of%20Health%202005/FINAL%20ARNS.pdf – accessed December 2013.

2. **Contento IR** Nutrition Education: Linking theory, research, and practice. *Asia Pac. J. Clin. Nutr.* 2008; **17**: 176-179.

3. **Girard AW, Self JL, McAuliffe C and O Olude** The Effects of Household Food Production Strategies on the Health and Nutrition Outcomes of Women and Young Children: A Systematic Review. *Paediatr Perinat Epidemiol.* 2012; **26**, Suppl 1:205-222. doi: 10.1111/j.1365-3016.2012.01282.x.Suppl.1, 205-222.

4. **UN SCN**. World Nutrition Situation. Sixth report on the world nutrition situation by the United Nations System Standing Committee on Nutrition (UNSCN). 2010. Available at http://www.unscn.org/files/Publications/RWNS6/html/index.html - accessed December 2013.

5. **World Bank.** From Agriculture to Nutrition: Pathways, Synergies and Outcomes. The International Bank for Reconstruction and Development / The World Bank (2007). Available at http://siteresources.worldbank.org/INTARD/825826-1111134598204/21608903/January2008Final.pdf - accessed December 2013.

6. **FAO.** Food and Agriculture Organization of the United Nations. The Need for Professional Training in Nutrition Education and Communication. Report on seven case studies carried out in Botswana, Egypt, Ethiopia, Ghana, Malawi, Nigeria, and Tanzania. FAO, Rome, June 2011. Available at: http://www.fao.org/ag/humannutrition/29493-0f8152ac32d767bd34653bf0f3c4eb50b.pdf - accessed December 2013.

7. **FAO.** Food and Agriculture Organization of the United Nations. ENACT workshop, Aburi (Ghana), 16-20 July 2012: Final Report. FAO, Rome, 2012. Available at: http://www.fao.org/ag/humannutrition/35313-0654afe67bcc744541cb39f0f6ec87.pdf – accessed December 2013.

8. **Commonwealth of Learning** Creating learning materials for open and distance learning: A Handbook for Authors and Instructional Designers. COL (2005). Available at: http://www.col.org/resources/publications/Pages/detail.aspx?PID=236 – accessed December 2013

9. **SAMDI.**Training Manual Module 3: The planning and design of outcomes-based learning. South African Management Development Institute. SAMDI (2007).

10. **Montgomery S and W Willis** Fiscal year 2005 impact and review of the expanded food and nutrition education program. United States Department of Agriculture Cooperative State Research, Education, and Extension Service. 1-

11. **Leite WL, Svinicki M and Y Shi** Attempted Validation of the Scores of the VARK: Learning Styles Inventory With Multitrait–Multimethod Confirmatory Factor Analysis Models.*Educ.Psychol. Meas.* 2010;**70**, 323-339.