Health and Human Development GA 3: Written examination

GENERAL COMMENTS

The paper was designed to ensure that students were assessed against all the criteria set for the examination. Fewer students wrote their answers in pencil this year but a number used highlighters to emphasise their answers. At worst, these interfered with an assessor's ability to actually read the answer, so this practice should be discouraged.

A significant number of students had difficulties interpreting and answering some questions. A lack of knowledge of public health and stereotyping of developing countries and indigenous people was evident. It is important that the three areas of the study – nutrition, development, health – are brought together and not taught as separate entities. Another concern was students referring to foods as either healthy or junk. Students should know that foods are nutrient dense or low nutrient dense.

SPECIFIC INFORMATION

Question	Marks	%	Response
Question 1	**a**		Points that could have been included were:
	0/6	2	Adam – sense of self esteem (emotional development), experience of intimate
	1/6	8	relationships (emotional development), sense of belonging in family (social
	2/6	23	development), father/son interactions (emotional development), giving and receiving
	3/6	33	love and affection (emotional development), responsibility (social development).
	4/6	20	Jed – bonding with a key caregiver (emotional development), learning to interact
	5/6	9	with others (social development), learning to communicate (emotional and social
	6/6	5	development), learning appropriate behaviour (social development), security
	(Average mark 3.04)		(emotional development). Students were able to distinguish between emotional and social development. It is important that students state whether they are writing about emotional or social development. This student response has three appropriate responses which clearly indicate the type of development and the person being addressed: By enhancing the attachment that Jed develops for Adam it will make Jed feel secure and safe when Adam is in his presence. Feeling safe around familiar people and developing an attachment to these people is very important in the emotional development of Jed. Reading stories together can help Jed in the development of self-esteem. Adam and Jed both enjoy the activity and this would make Jed feel wanted by and special to his father. The development of these strong feelings towards family is good for emotional development. If Jed feels loved and wanted at home then he is more likely to develop a positive and strong self esteem as he gets older. Adam would feel confident that he is being a good father helping his self-esteem and his emotional development. Reading together is demonstrating to Jed how to enjoy another person's company and how to share experiences with others. This is an important aspect of Jed's social development as it will help him to communicate with others and develop relationships with them more easily. Socialising with Jed would enhance the father-son bond so Adam's social development would be positive. Students were expected to comment on both Adam and Jed by explaining either two points for Jed and one for Adam, combining Jed and Adam in each of three points or even making three points for each of Adam and Jed.

	b 0/8 25 1/8 10 2/8 15 3/8 15 4/8 15 5/8 7 6/8 7 7/8 3 8/8 3 (Average mark 2.68)	Four marks were available for each of two examples of physical development relevant for a 3-year-old. Relevant links between the physical development characteristics chosen and social development **and** emotional development had to be made. Some points that could have been made were: ***Physical development*** – examples of fine and gross motor development – learns to stand on one foot, roll balls, play alongside others, riding a bike/trike, tries all the equipment at play group and further increases skills. Overall growth rate slows. ***Social development*** – occurs when able to play along with other children, fine motor skills enables him to feed himself and eat with others. ***Emotional development*** – being able to stand on one foot, roll balls increases self esteem, adults will provide praise, other children may include him in their area of play, seen as able so he feels good about himself, happy to keep trying. The following answer covers all the requirements of the question: Two characteristics of physical development that would be expected for Jed are – • Jed's gross motor skills will be refining, allowing him to produce actions such as kicking and throwing a ball. Jed's ability to join in sporting activities, walk and run, at the same rate as everyone else the same age will encourage him to interact with others the same age and aid his social development. As his development is as predicted he will not feel different, he will feel like he belongs, boosting his self-confidence and allowing important emotional skills to develop • Jed's fine motor skills will be refining allowing him to do things like feed and dress himself. Jed will feel proud when he is able to do such tasks – an example of emotional development. If he can feed himself he can eat with others so his socialisation skills will develop. Some students discussed the effects of his height and weight being different thus missing the point that his physical development was predictable. Growing baby teeth is an inappropriate physical development for a 3-year-old. Developing speech is a cognitive development that is not a part of the study design. Many students answered this question as if Jed was an adolescent.
Question 2	**a** 0/12 3 1/12 5 2/12 8 3/12 10 4/12 12 5/12 11 6/12 11 7/12 9 8/12 8 9/12 7 10/12 7 11/12 4 12/12 5 (Average mark 5.83)	Up to 2 marks for the differences and up to 2 marks for the reasons for the differences for each of the three nutrients were available. Each age group had to be covered. Some students responded from the point of view of the nutrients (as given below) while others used each age group to explain each of the nutrients. Either approach was acceptable. Some points that could have been used in answers for each of the nutrients were: • ***Calcium****:* Pregnant women require 300 mg more calcium per day than non-pregnant women and girls 12 to 15 years require 100 mg more per day than do girls 8 to 11 years. Girls aged 12 to 15 are going through a growth spurt with the growth of the long bones, hips widen. Non-pregnant women – bone mass increases up to the 30 to 45 years stage, prevention of osteoporosis by maintaining bone density. Pregnant women – maintain mother's bone mass, foetal need greatest in the 3rd trimester for maximum bone growth and tooth bud formation. Girls aged 8 to 11 = maintenance. • ***Protein****:* Pregnant women require 6 g more protein per day than non-pregnant women and girls 12 to 15 years require 17 g more protein per day than girls 8 to 11 years. Twelve to 15 years – synthesis of new tissue associated with adolescent growth spurt (height, weight, breast tissue), hormones. Non-pregnant – need 0.75 gms/kg for body maintenance. Pregnant – usually in the 2nd and 3rd trimester for normal weight foetus and extra maternal tissue, soft and hard tissue development of the foetus. Girls 8 to 11 = maintenance of growth and development. • ***Iron****:* Pregnant women require 10–20mg more iron per day than non-pregnant women and girls 12 to 15 years require 4–5 mg more iron per day than girls 8 to 11 years because it is required for haemoglobin which carries oxygen from the lungs to tissues and an increase is required in pregnancy for the greater blood volume and foetal blood supply and foetal blood stores for first 6 months

		after birth and for placenta development. The increase in girls aged 12 to 15 is dependent on the rate of growth and the stage of physical maturity (blood loss during menstruation) and physical activity levels. Non-pregnant: depends on height (blood volume), blood loss during menstruation, level of activity. Many students covered only two age groups; others did not explain the reasons for the differences but rather stated that there was a difference. Of concern were the students who wrote that protein was the source of energy rather than required for the growth and maintenance of soft and hard tissues. Many students did not understand the nutrient requirements for pregnancy. Some students were able to describe the interactions between nutrients.
	b 0/6 8 1/6 15 2/6 25 3/6 22 4/6 16 5/6 9 6/6 5 (Average mark 2.69)	Students needed to show which was environmental and which was genetic to gain full marks. They could gain up to 3 marks for each of the areas. Only one example in each area was required. Points that students could have drawn on were: • ***Environmental factors*** – smoking, alcohol, exercise, stress, caffeine, drug addiction, Rubella, socioeconomic status, under-nutrition. Students had to explain the effect of one of these on the physical development of an embryo/foetus, e.g. over exercise – heats mother's body, deprives foetus of oxygen and starves growth. Smoking – lack of oxygen leads to low birth weight increases health risks for neonate. Alcohol – Foetal Alcohol Syndrome – low birth weight, head shape is altered, mental retardation. • ***Genetic factors*** – Down's Syndrome, Cystic Fibrosis, Haemophilia, Rhesus factor. Students were expected explain how these affect the development of an embryo or foetus. The following student response explains the effect on the mother well but does not fully explain the effect on the next embryo/foetus, where effects on development are more defined: A genetic factor which may affect the physical development of the foetus is the inheritance of a genetic disorder. This can result in deformation of the embryo/foetus. One example is the rhesus factor where if a mother has had a child whose blood is Rhesus negative and the mother's blood is Rhesus positive then when that baby is born the two bloods may mix causing the mother's body to form antibodies against that blood type. If the mother should become pregnant again and have a Rhesus negative foetus developing the antibodies will systematically attack the new foetus. An environmental factor can be under-nutrition. A mother suffering from under-nutrition will result in the embryo/foetus being undernourished also. This may cause the child being born to have a low birth weight making it more susceptible to illness and poor physical development. This response would be improved by an explanation of the effect of inadequate intake of folate (for example) in under-nutrition and the consequences for the health of the baby of the attack of the antibodies in the genetic section. Students were more able to choose a relevant environmental factor. Fewer were able to describe an appropriate genetic factor for this stage of the life cycle. Spina Bifida is related to an inadequate intake of folate, not a genetic factor.
	c 0/3 27 1/3 27 2/3 30 3/3 16 (Average mark 1.33)	Students could gain up to 3 marks for identifying an appropriate biomedical approach and then explaining its effects. Points that students could have chosen were: ***Biomedical approaches*** – ultrasound, amniocentesis, monitoring of iron and blood sugar levels, checking for gestational diabetes, monitoring blood pressure, Chorionic Villa Sampling, supplements such as folate, checking Rhesus status. Must explain how they enhance health, e.g. ultrasound can reveal placental insufficiency hence close monitoring of foetal growth; amniocentesis can identify Rh+/RH- status and may induce birth early to prevent the death of the foetus through incompatibility with mother's blood supply. Folate supplements prior to and up to 3 months after pregnancy begins may lessen the possibility of Spina Bifida. Checking gestational diabetes. Monitoring blood pressure is important to check for eclampsia which may result in foetal still birth. All of these interventions can have a positive impact on the mother's emotional health either knowing that the foetus is growing in a healthy way or giving her time to prepare for further intervention. One view is that many of these

		examples are secondary prevention, that is recognising possible risks and the procedures that follow the recognition are biomedical. The study design does not necessarily ask for this level of separation and very few students responded this way. One student responded: The biomedical approach may be ultrasound. Ultrasounds allow medical practitioners to observe the developing foetus through the bounce back of sound waves producing an image. This means that they are able to look at the foetus's development and determine any different factors about its health which also means diseases or malfunctions can be identified and medical procedures can be performed to help produce a healthy neonate. Knowing the health of the embryo can affect the emotional health of the mother – she can be happy or she can prepare for further interventions. This student could have discussed the effect on the physical health of the mother. Many students identified a biomedical approach but did not explain the effect on the health of the mother and her embryo/foetus.
Question 3	**a** 0/6 31 1/6 14 2/6 16 3/6 13 4/6 12 5/6 6 6/6 7 (Average mark 2.06)	One mark was allocated for each relevant development example and 1 mark for each of the descriptions. Suitable points that could have made were: • increasing independence – through job, further education, moving out from parental home – increases social development • developing intimate relationships – may include mate selection – impacts on emotional development • growing sense of self-esteem through finishing a degree and/or gaining employment – impacts on emotional development • muscular strength peaks – enables participation in exercise to maintain physical fitness and health and enables top potential in chosen sports or in exercise – physical development. Many students inappropriately described the development occurring during puberty (usually labelled as the adolescent stage of the life span). The stage of the lifespan after adolescence is labelled in a number of ways but the most common are young or early adulthood meaning the stage post-puberty where the above characteristics are present.
	b 0/9 3 1/9 4 2/9 10 3/9 18 4/9 17 5/9 15 6/9 14 7/9 10 8/9 5 9/9 4 (Average mark 4.56)	There were some of excellent responses to this part. One mark was given for identifying one example of each of physical, social and emotional health and/or development. To gain full marks students had to write whether they were discussing health or development and how depression may impact. Suitable points to make were: • ***Physical health*** – feelings of heart racing, numbness, tingling, nausea, sweating, shaking, pounding heart, short of breath, dizzy, tiredness, lethargy, not wanting to be involved, poor eating and sleeping patterns may lead to absenteeism from commitments at work, study, sport, exercise • ***Physical development*** – feelings of lethargy may impact on lack of exercise and proper eating to maintain muscle development and maintenance of body systems. • ***Social health*** – feelings of social isolation, panicky, terrified, on edge, scared, unable to make decisions, may mean unable to maintain social relationships and contacts with friends and family or avoid contact • ***Social development*** – impaired social development as may not interact with others in social settings and find it increasingly more difficult to do this and become more of a 'loner'. • ***Emotional health*** – mood swings, avoid eye contact, use alcohol and sedatives to calm down, unable to cope with stress, low feelings of self-worth, self-harm, suicide tendencies may mean worrying all the time, feeling that will not have anything interesting to say therefore low self-esteem. • ***Emotional development –*** low self-esteem may mean that other emotions are not fully developed, for example developing intimate relationships.

	c 0/2 17 1/2 35 2/2 48 (Average mark 1.3)	Students needed to provide two appropriate examples to obtain full marks. Appropriate examples were: • developing programs for counselling, medications, programs and health care and the associated financial and personal costs involved • job losses due to absenteeism may mean increased costs to employers and unemployment benefits for the people with the illness • long-term ill health means increased hospital and pharmaceutical costs; concern by friends, families and communities increases stress.
Question 4	**a** 0/6 14 1/6 18 2/6 22 3/6 16 4/6 13 5/6 8 6/6 9 (Average mark 2.54)	Students could gain 1 mark for each factor and 1 mark for an appropriate description of that factor. Students should know that there is not a direct link between food intake and diabetes but that the link is through the increased risk for diabetes if a person is overweight or obese (low fat, sugar and salt food choices were considered as 1 point). Suitable points were: • changing of diets – more use of manufactured food, over-consumption often linked with low physical activity may lead to obesity and increased risks for diabetes • increasing canned drink intake – beer, soft drink – high in sugar, alcohol, low nutrient dense, high energy leading to obesity • less availability of a wide range of foods in the local environment – less fresh fruit and vegetables, limited storage for food therefore increased intake of pre-prepared foods that are more likely to be high in fat, salt and/or sugar increasing the likelihood of obesity • inadequate food preparation skills, seasonal shortages may lead to use of high fat/high sugar convenience foods that impact on an increase in weight • lower socioeconomic status – less money available for high fibre, low fat, low sugar foods leading to eating less nutrient dense foods that may lead to an increase in the likelihood being overweight.
	b 0/4 10 1/4 32 2/4 34 3/4 16 4/4 8 (Average mark 1.79)	Sample points that could have been included were: • ***Public health measures or efforts include*** – Protect, Prevent, Promote. Develop policies and strategies to decrease the incidence of diabetes. • ***Protection*** – increase number of indigenous health workers to run support groups, teach dietary considerations, teach food preparation skills for foods that are culturally and environmentally acceptable, make sure foods are available in local communities. • ***Prevention*** – increase access to appropriate foods at an appropriate cost to individuals and groups, adequate income in an economically/culturally sensitive environment through job creation, social justice initiatives, education about diet and health. • ***Promotion*** – enable increased control over health. Promote a political environment that provides appropriate health services where they are required, policies that support the provision of culturally sensitive health care and education, and legislation to support these. One student responded: Governments could utilise the elements of the Ottawa Charter to maintain and promote public health. They could build healthy public policy by introducing rules and regulations regarding the promotion and selling of high fat and sodium foods. They could create community groups in which indigenous Australians can be educated to communicate their knowledge of diabetes and develop strategies combating diabetes in their communities. Community action could be strengthened by advertising foods in local supermarkets and shops that display, for example, the National Heart Foundation Tick of Approval. Personal skills could be developed through health education programs for young students in local primary schools telling them about the importance of maintaining a healthy weight range. Health services in the area could also provide preventative advice on how to avoid developing diabetes.

		This student is beginning to understand public health and a social health model that governments could use to guide their actions. However the response could be improved by describing more specific strategies for this section of the community. A few answers described actions that each of the three levels of government could take. Many answers only mentioned education in general without providing a particular way that education could be used. Many students just said 'to use a food model' without explaining how it could be used and even how it may have to be adapted for an indigenous group or why it was a public health initiative. The differences between rural and urban Indigenous people were not noted by many students, and stereotyping of Indigenous people was of concern. Knowledge of the meaning of Public Health appeared to be lacking in most students. The program developed by the National Aboriginal and Torres Strait Islander Nutrition Working Party could be explored along with the Eat Well Australia 'A Strategic Framework for Public Health Nutrition' developed by the Strategic Inter-Governmental Nutrition Alliance of the National Public Health Partnership (SIGNAL).
	c 0/8 11 1/8 12 2/8 20 3/8 21 4/8 17 5/8 10 6/8 6 7/8 2 8/8 1 (Average mark 2.91)	Diabetes Type 2 is a lifestyle illness with a relationship between dietary imbalance and low levels of physical activity and therefore it is appropriate to use preventive approaches. Students should have made it clear what preventive meant. Students could gain up to 3 marks for identifying and then describing a preventive approach. Sample points that students could have used were: Primary prevention – activities to prevent or delay onset or incidence. Individual takes responsibility, managing weight/blood pressure, making lifestyle changes, balancing energy intake with the amount of energy expended (keeping the level of glucose in the blood at the effective level). Difficult to make changes as get older – long-term behaviour change becomes extremely difficult. Education is expensive in dispersed communities. Students could gain up to 5 marks for justifying why preventative action is more beneficial than the biomedical approach. They needed to explain what biomedical means and the differences between it and primary prevention and say why primary prevention is usually more effective. Sample points that could have been used were: • Biomedical – medical intervention to cure after it is present. Increasing reliance on doctors that may not be readily available to cure or manage the illness. • Costs of treatment are high – continuing costs in medical tests to monitor the disease. Diabetes may lead to other health concerns such as vision problems, circulation problems that mean increased medical and pharmaceutical costs. One student adopted some of these points and responded with: The best preventative approach that could be used to decrease the prevalence of diabetes among all Australians is education on health in schools and an emphasis on exercise for kids It is important to teach people to balance their food intake with exercise. In order to prevent non-insulin dependent diabetes obesity has to be addressed. Young families including their children have to be educated about the importance of selecting high nutrient dense foods rather than eating foods high in sugars, fats and/or salt. Another big problem is the food that canteen's provide for lunch for children is often low in nutrients. Also exercise is a huge factor in maintaining health. By setting up physical exercise programs for children each day at school you are teaching them physical skills they can use all their lives. These preventative approaches are more effective than the biomedical approach because the biomedical approach is designed to help people once they have a problem such as diabetes. People with diabetes have to manage the symptoms for the rest of their lives. This costs money and time. Many students used a food model in their answer without really explaining its role in reducing obesity and consequently diabetes. Students need to think about the ways food models should be used given that they have been in use for many years. Given that obesity, and its related conditions, is currently a major health issue in Australia the food models may not be effective in guiding what people eat.

Question 5	**a** 0/4 7 1/4 15 2/4 34 3/4 25 4/4 19 (Average mark 2.33)	Students could gain 1 mark each for identifying two appropriate reasons and 1 mark for each of two explanations. Global levels of obesity are an issue recognised by the World Health Organisation. Some suitable points were: • Globalisation has changed the nature of the world's food supply and nutrition. • Obesity is being superimposed on precarious health systems in many developing countries. Food availability may be controlled by multinationals that may prefer to distribute high profit/low nutrient dense food products that are high in energy and low in fibre. Developing countries may be seduced by low nutrient dense foods that are advertised widely by multinationals as an indicator of development and priced appropriately for a specific country. • Maldistribution and/or inequity in distribution, not necessarily a lack of food but a lack of food security. Food exported from developing countries to developed countries therefore less available food in less developed countries providing high fat foods in most countries, advertised widely and priced to fit the economy of specific countries. • Decreased opportunities for outdoor play and the popularity of sedentary activities lead to low levels of exercise to balance food intakes.
	b 0/4 13 1/4 17 2/4 30 3/4 21 4/4 19 (Average mark 2.16)	Students could gain up to 2 marks for each of two reasons. They had to state whether they were referring to health or development. Points that students could have considered were: • ***Consequences of under-nutrition on development*** – mother may give birth to underweight baby with consequent care of the neonate. May not have enough nutrients available for essential organ development, e.g. the brain of the foetus. • ***Consequences of under-nutrition on health*** – low energy levels therefore unable to work leading to less money for access to food and health care. May die prematurely from other causes – decreased ability to resist disease through impacts on immune system. Students were generally able to answer this part with appropriate examples.
	c 0/7 20 1/7 24 2/7 22 3/7 15 4/7 10 5/7 6 6/7 2 7/7 1 (Average mark 2.04)	Students were required to select an appropriate strategy and describe it for 2 marks. They could then gain up to 5 marks for their explanation of why it would work in a developing country. Students had to use their knowledge of obesity, strategies for reducing obesity and factors effecting health and nutrition in developing countries. The following are examples of strategies that could have been used as the basis for a response: • ***World Food Program*** – Food Aid Development (FAD) that identifies inadequacies in a local area, involves women and families, schools, maternal and child health care centres in promoting self-reliance through food aid to break any persistent cycle of poverty and ill-health through eating low nutrient dense foods. • ***Disease control*** – safe sanitation, safe water will mean healthier people able to work and earn money to purchase adequate food or grow their own foods. • ***Education*** – promotion of good health and nutritional habits, self-reliance in food choices, promotion of appropriate diets and healthy lifestyles – simple models for food selection appropriate for local areas. One student suggested the following approach: Village workers could be trained and educated on how to eat appropriate foods and why it is important. These workers could then work with their community to teach the women about which foods are best to eat. The women are more likely to respond to these workers as they are of their own culture rather than foreigners such as Australians. Teaching the women about choosing foods that are low in fat, salt and sugar and high in dietary fibre would mean that their families would also benefit as women are the main caregivers and responsible for preparing foods. The women would have to be taught about where to get food. This education would mean that the women could prepare cheap, healthy meals for herself and her family to reduce the risk of obesity. This strategy should be used as it focuses on women and

education that is culturally appropriate. It would reduce the prevalence of obesity. It is supported by the Ottawa Charter as it develops personal skills. By developing the personal skills of the women and increasing their knowledge they will be confident that what they are feeding their families is good for them and also enabling them to teach their daughters what they know. This is sustainable development as it is educating people instead of giving them handouts. It is giving the people knowledge that can be passed down to future generations to help reduce the prevalence of obesity as well as underweight problems and increases the quality of life of people in developing countries.

This student has suggested an appropriate way to have an impact on foods eaten and has linked the strategy with the characteristics of sustainability. A number of students suggested using a particular 'food model' without saying how it should be used to combat obesity in a developing country or whether it was culturally relevant. Suggesting a strategy such as 'Life Be In It' without explaining ways it would be adopted in another country or why it would impact on obesity, is not a suitable response.

Few students performed well on this question and the two main problems that need to be addressed are:

- limited understanding of the concept of 'malnutrition'. The question spelt out the conventional meaning as being over- and under-nutrition. Despite this many students only equated malnutrition with under-nutrition.
- stereotypical views of developing countries (particularly African). Developing countries occur all around the world – the main criteria that links them is their low level of economic development. In other characteristics (e.g. literacy, rural/urban divides) there are many variations.

The World Health Organization (WHO) has recognised obesity as a global health issue and has significant research and data to support this as provided in the question. A number of articles in the media during 2002 raised the issue of obesity as a global issue for most countries.

WHO information is available from: www.who.int/nut/index.htm