

## **EXPLANATORY PAPER**

# **The Technological Practice Strand: Brief Development**

### **ABSTRACT**

The purpose of this explanatory paper is to clarify and define what a brief is and how it is developed as part of technological practice. It presents the component descriptor, the key ideas underpinning it, and illustrative examples of these from technology and technology education.

### **COMPONENT DESCRIPTOR**

Brief development is a dynamic process that reflects the complex interactions within ongoing technological practice. A brief is developed to clearly describe a desired outcome that would meet a need or realise an opportunity, and takes into account the physical and social environment. It is comprised of a conceptual statement that communicates what is to be done and why it should be done.

It also includes specifications that define the requirements of a technological outcome in terms of its physical and functional nature. The specifications provide guidance for ongoing evaluation during the development of an outcome, as well as serving as an evaluative tool against which the final outcome can be justified as fit for purpose. Brief Development can be thought of as the defining practices of technological practice.

### **KEY IDEAS**

A brief in technology is defined as a succinct guiding document that is comprised of a conceptual statement that communicates, via any appropriate means (eg, through oral, written, graphical means), the focus and justified purpose of the technological practice to be undertaken to develop a technological outcome. That is, an explanation for what is to be done and why it should be done. This statement is based on findings from the exploration, and analysis of the context and issue from which the need or opportunity driving the project has been identified.

A brief also includes specifications that define the requirements of a technological outcome in terms of such things as appearance and performance. This is referred to as the technological outcome's physical and functional nature. Specifications are an explicit set of requirements that need to be satisfied for the outcome to be judged as 'fit for purpose' and can be described as normative standards. That is, they are measurable standards established by, and agreed to, by people to communicate precisely what a technological outcome ought to be and/or what it ought to be able to do. Identifying attributes is a common precursor to specification development. Attributes are not standardised measures, but rather broad descriptors that can be described as relative rather than standardised. That is, they may mean different things to different people.

A brief may also include specifications for the practice that must be adhered to when developing a technological outcome. When these are included the brief can be said to guide the development and allow for an evaluation of fitness for purpose in its broadest sense.

In an acknowledgement of intermediate outcomes of technological practice, (those outcomes that have not been developed through to a fully realised technological outcome), a developing brief will reflect the stage of outcome that the project is aiming for. For example, if the outcome of technological practice is a scale model, the brief will contain guidance in terms of developing a model to scale, and the purpose of the model. The specifications for this brief will relate to the model and its need to communicate and/or test the potential of a developing design, to resolve the need or opportunity should it go on to be realised as a technological outcome.

The development of a brief is an iterative process that reflects the complex interactions within ongoing technological practice. A brief cannot be viewed as a one-off exercise completed at the beginning of any project.

Rather, it is developed, refined and/or modified in an ongoing manner throughout the project. This is based on initial research into the context, the developing knowledge and skills of the technologist and changing contextual circumstances, which includes critical feedback from stakeholders.

The identification of an authentic need or opportunity relies on a comprehensive exploration and critical analysis of a context, and any associated issues. It would be expected that such an exploration may result in the identification of a number of needs or opportunities. Selection of one of these will rely on establishing the appropriateness of the need/opportunity, as a justified purpose for undertaking technological development.

Any brief developed is specific to the selected need or opportunity, and should take into account the physical and social environment of both the final outcome and the practices that are undertaken in its development. The social environment includes a range of factors such as the ethical, cultural, political, and economic aspects that work together in complex ways. To develop full understanding of the physical and social environment, it is necessary to explore how historical events have impacted on the relationships between these aspects, and how possible events may be influenced in the future.

As the development work continues, the knowledge and skills of the technologist are increased, particularly through functional modelling. This allows new understandings to be used to reflect on the justification of the purpose, the prioritisation of factors underpinning the specifications, and the feasibility of the developing outcome.

The initial attributes and final specifications of a brief are the result of extensive research, including trialling and testing of design ideas. They reflect the prioritisation of factors that have arisen as part of key and wider community stakeholder consultation, and understandings of the physical and social environmental impacts and influences. The specifications provide guidance for ongoing evaluation during the development of an outcome, as well as serving as an evaluative tool against which the final outcome can be justified as fit for purpose, or not, including where fitness for purpose is conceptualized in its broadest sense.

As the brief is developed, stakeholder feedback is essential, and the media used to communicate the brief should be chosen to gain feedback in the most effective and efficient manner. While the brief is developed in an ongoing manner within any project, it should be finalised prior to the completion of any outcome, so as to serve as the evaluative tool against which the final outcome is judged.

## **ILLUSTRATIVE EXAMPLES FROM TECHNOLOGY**

With the changing world of air travel, Air New Zealand decided to undertake a major rebranding exercise. A key part of this was the design of new uniforms. Air New Zealand went to leading New Zealand design company Zambesi, to undertake this project. Zambesi explored the issues the airline was facing and sought to develop a uniform range that would meet the needs of all major stakeholders. For an example of how the brief developed throughout this technological practice, see [Zambesi style](#).

Sealord is an innovative New Zealand company always looking at opportunities to extend its product range. Faced with an opportunity, provided by a supply of quick frozen scallops, a team of technologists worked together to design a new product. The brief developed had to provide guidance and evaluation tools for both the scallop product itself, as well as its packaging. For an example of how a range of factors were brought together by this team to develop the brief see [Sealord Group case study](#)

## **ILLUSTRATIVE EXAMPLES FROM TECHNOLOGY EDUCATION**

### **Learning experiences**

The following learning experiences have been provided to support teachers as they develop their understandings of the Brief Development component of the Technological Practice strand. There is no expectation that these would form the basis of any specific unit of work in technology. The learning experiences have been summarised from classrooms across New Zealand, and provide examples of student achievement across a range of levels. This stance reflects the majority of classrooms within which it is expected that students will demonstrate a range of levels of achievement.

### **Junior Primary (NE-Year 4)**

During a discussion about a lunchtime 'toilet' incident, students in this class identified that there were problems with regards to the toilets. There was general agreement that the toilets were unpleasant to use, and from this the teacher and students decided they should do something about them. They worked with a number of experts from the local community to make changes that the whole school would benefit from. For details of this unit please see [Nicer Loos](#).

#### **Students achieving at level 1 could:**

- describe the improved toilets they worked to develop
- identify attributes that a toilet environment for girls and boys in a school would need to have to be nicer to use

#### **Students achieving at level 2 could:**

- explain the new toilet environment in terms of colours and fittings, and how the toilets would need to be cared for to make sure they continued to be nicer to use than the old ones
- describe the attributes required for toilets to be more pleasant for girls and boys to use, in terms of creating the environment itself (colours, the selection of fittings), as well creating systems to ensure the maintenance of the toilets in the future (cleaning systems and education of users)
- describe specific attributes they identified for their part of the project in a way that allowed them, and their teacher, to evaluate their progress and final outcome

### **Senior Primary/Intermediate (Years 5-8)**

Year 7 students identified a common personal need created by their attendance at the Technology Centre. As they attended another school for their technology programmes they had to bring food for lunch, and during the winter they liked this to be hot. In the past this hot food was mostly pies. Together the classes looked at other possibilities for quick meal-snack ideas that would be both appealing and nutritious. For details of this unit please see [Hot Bread Snacks](#)

#### **Students achieving at level 2 could:**

- explain what they had chosen to develop as a snack
- describe the attributes required for their snack in terms of taste, appearance, texture, time to cook, ease of making, and nutritional value, in ways that allowed them and their teacher to evaluate their progress and final outcome

#### **Students achieving at level 3 could:**

- describe what they had decided to develop in terms of what they wanted it to be like and what they wanted it to provide and explain how this particular type of snack reflected the need in terms of personal likes and health choices
- describe the key attributes required for their snack in terms of taste, appearance, texture, time to cook, ease of making, and nutritional value in ways that allowed them and their teacher to evaluate their progress and final outcome
- refine their conceptual statement and key attributes as they experimented with different ingredients and methods of making their snack, and personally evaluated their snacks for taste, appearance and texture

#### **Students achieving at level 4 could:**

- justify what they had decided to develop and why they had chosen this particular type of snack, in terms of personal likes and health choices, and feedback from others about appropriate health choices for their age and body type, and the resources (time, equipment, ingredients, level of skill) required to cook such a snack successfully
- establish key attributes for their particular snack as a starting point for development work
- refine their conceptual statement and key attributes as they undertook further research, experimented with different ingredients and methods of making their snack, and carried out testing of their snacks personally and

with others in the class, to gain feedback on its taste, appearance and texture in line with key attributes

- describe the key attributes required for their snack in terms of taste, appearance, texture, time to cook, ease of making, and nutritional value in ways that allowed them, their teacher and others in the class to provide feedback on their progress and final outcome

### **Junior Secondary (Years 9-10)**

A year 10 class was given the context of issues affecting the wider ICT community, from which they had to select an issue of particular concern. From this issue, the students undertook brief development to support the creation of an informative kiosk presentation for an identified target audience focused on the issue. In creating their presentation, students applied the concepts learnt in a previous unit and how to manipulate digital images using Fireworks to enhance their presentation. For details of this unit please see [Junior ICT Programme](#).

#### **Students achieving at level 3 could:**

- describe the opportunity focused on
- describe what the nature of the information kiosk in terms of what they wanted it to be like and what they wanted it to do and explain how this reflected the concern identified.
- describe the key attributes required for a presentation to a target audience, in ways that allowed them and their teacher to evaluate their progress and final outcome
- refine their conceptual statement and key attributes as they developed greater knowledge of the issue, skills in manipulation digital images and their target audience

#### **Students achieving at level 4 could:**

- identify an opportunity and establish a conceptual statement outlining their presentation based on this
- justify the focus and nature of their presentation, based on understandings of the issue, its impact on the ICT community and the target audience
- establish key attributes for their presentation as a starting point for development work
- refine their conceptual statement and key attributes as they undertook further research into the issue, experimented with design, typography and image manipulation and trialed material in different forms to gain feedback from members of their target audience, about the impact of animations and other effects on the development of understandings of the focus issue
- describe the key attributes required for their presentation, in terms of aesthetics and performance, in ways that allowed them, their teacher and members of their target audience to provide feedback on their progress and the fitness for purpose of their final outcome

#### **Students achieving at level 5 could:**

- identify an opportunity and establish a conceptual statement based on this and an understanding of the intended audience.
- justify the focus and nature of their presentation, based on understandings of the issue, its impact on the ICT community and feedback gained from key stakeholders representative of their target audience
- develop specifications for their presentation from identified attributes ensuring that each specification allows for a standardised evaluation to be undertaken.
- refine their conceptual statement and specifications as they undertook further research into the issue and its impact on the wider ICT community, developed further skills and understandings of presentation design, typography and image manipulation and gained evidence from key stakeholders of how both the information and its presentation impacted (positively and/or negatively) on the development of understandings of the issue
- describe final specifications for their presentation in terms of aesthetics and performance that allowed them, their teacher and key members of their target audience to provide feedback on their progress and the fitness for purpose of their final outcome

## **Senior Secondary (Years 11-13)**

A group of year 13 students was invited to work with a local picture framing business called Edges. Edges provided a common context for the students to explore in order to identify issues, and potential needs and/or opportunities within these. Issues identified included: security, advertising and promotion, and construction and display of products.

The students worked closely with the client to develop a brief to define and specify the requirements of an outcome that would address an identified need or opportunity for Edges. The students' final outcomes were in the form of the brief and conceptual ideas for potential outcomes that would meet the brief. For details of this unit please see [Client based student practice](#)

### **Students achieving at level 4 could:**

- identify a need and establish a conceptual statement for a potential outcome based on this
- justify the focus and nature of potential outcomes, based on understandings of the need or opportunity and the impact of the selected issue on Edges as a business
- establish key attributes for potential outcomes, and how they could be best communicated, as a starting point for development work
- refine their conceptual statement and key attributes, as they undertook further research and explored techniques for developing and communicating conceptual ideas, and gained feedback from personnel working at Edges
- describe the key attributes required for potential outcomes that allowed them, their teacher and personnel working at Edges to provide feedback on their developing communication skills, and the potential fitness for purpose of the conceptual ideas presented

### **Students achieving at level 5 could:**

- identify a need and establish a conceptual statement for a potential outcome based on this
- justify the focus and nature of potential outcomes, based on understandings of the need and discussions with key stakeholders associated with Edges
- develop specifications for their presentation from identified attributes ensuring that each specification allows for a standardised evaluation to be undertaken
- refine their conceptual statement and specifications as they undertook further research and experimented with a range of techniques for developing and communicating conceptual ideas, and gained feedback from key stakeholders associated with Edges
- describe final specifications for their potential outcome that allowed them, their teacher and key stakeholders associated with Edges to provide feedback on the effectiveness of their communicative drawings/displays to convey design ideas, and the potential fitness for purpose of the conceptual ideas presented

### **Students achieving at level 6 could:**

- identify a need and establish a conceptual statement for a potential outcome based on this
- justify the focus and nature of potential outcomes, based on understandings of the need or opportunity, understandings of current and prospective customers, and discussions with key stakeholders
- develop specifications for their presentation from identified attributes ensuring that each specification allows for a standardised evaluation to be undertaken for both the potential outcome and its communication to a range of audiences
- refine their conceptual statement and specifications as they undertook further research into the need or opportunity, the physical and social environment within which Edges functions, and experimented with a range of techniques for developing, communicating and trialling conceptual ideas with different stakeholders such as Edges' staff, customers (past, current and potential future), to gain critical feedback on both the ideas and the techniques used to communicate them
- justify specifications for a potential outcome in terms of key and wider community stakeholders.

### **Students achieving at level 7 could:**

- explore the context to select an issue which allowed them to identify a need and establish a conceptual statement for a potential outcome based on this and an understanding of the issue
- justify the focus and nature of potential outcomes, based on understandings of the impact of the selected issue on Edges as a business, understandings of current and prospective customers, and discussions with key stakeholders
- develop specifications for their presentation from identified attributes to guide development work of a potential outcome to address the issue, and to ensure the potential outcome is effectively communicated to a range of audiences ensuring that each specification allows for a standardised evaluation to be undertaken
- refine their conceptual statement and specifications as they undertook further research into the issue as it relates to Edges, the physical and social environment within which Edges functions and experimented with a range of techniques for developing, communicating and trialling conceptual ideas with different stakeholders such as Edges' staff, customers (past, current and potential future), to gain critical feedback on both the ideas and the techniques used to communicate them
- justify specifications for a potential outcome in terms of key and wider community stakeholders, resources available, and environment considerations related to the potential outcomes intended location.

### **Students achieving at level 8 could:**

- explore the context to select an issue which allowed them to identify a need and establish a conceptual statement for a potential outcome based on this and an understanding of the issue
- justify the focus and nature of potential outcomes, based on understandings of the impact of the selected issue on Edges as a business, other factors influencing and impacting on Edges from the physical and social environment, including understandings of current and prospective customers, and discussions with key stakeholders
- develop specifications for their presentation from identified attributes to guide development work of a potential outcome to address the issue, and to ensure the potential outcome is effectively communicated to a range of audiences ensuring that each specification allows for a standardised evaluation to be undertaken
- refine their conceptual statement and specifications as they undertook further research into the wider context and the issue as it relates to Edges, the physical and social environment within which Edges functions and experimented with a range of techniques for developing, communicating and trialling conceptual ideas with different stakeholders such as Edges' staff, customers (past, current and potential future), to gain critical feedback on both the ideas and the techniques used to communicate them
- justify specifications for a potential outcome, and for the development of conceptual ideas of possible outcomes, in terms of key and wider community stakeholders, resources available, environment considerations related to the potential outcome's development and intended location, and implications from the wider context.