Making the mainstream accessible: more than a game

This item was submitted to Loughborough University’s Institutional Repository by the/an author.

Citation: ATKINSON, M.T. ... et al, 2006. Making the mainstream accessible: more than a game. IN: 1st World Conference for Fun ‘n Games, June 26-28, Preston, UK.

Additional Information:

- This conference paper was delivered at the 1st World Conference for Fun ‘n Games (FNG 2006): http://www.chici.org/fng2006/index.htm

Metadata Record: https://dspace.lboro.ac.uk/2134/4462

Version: Accepted for publication

Publisher: © The authors

Please cite the published version.
Making the Mainstream Accessible
More Than A Game

Matthew Tylee Atkinson
<M.T.Atkinson@lboro.ac.uk>
http://www.agrip.org.uk/

Research School of Informatics
Department of Computer Science
Loughborough University

27th June 2006
Outline

Context
Then
Now
Future

Online Interaction
Global Navigation
Collaboration
Web-based Communities
Meaningful Competition?

Development Tools: Educational Integration?

Conclusions
Further Work
Conclusions
Acknowledgements

References
This talk concentrates on sight loss but could be applied to other disabilities.

Many individuals and some small companies started developing accessible games for disabled people.

Suddenly blind people were no longer limited to one genre (Interactive Fiction).

Most of the games were conversions of puzzles or classic arcade games.

Some developers have been more original.

Drawback: Segregation.
This talk concentrates on sight loss but could be applied to other disabilities.
This talk concentrates on sight loss but could be applied to other disabilities.

Many individuals and some small companies started developing accessible games for disabled people.
This talk concentrates on sight loss but could be applied to other disabilities.

Many individuals and some small companies started developing accessible games for disabled people.

Suddenly blind people were no longer limited to one genre (Interactive Fiction).
The Past of Accessible Gaming

▶ This talk concentrates on sight loss but could be applied to other disabilities
▶ Many individuals and some small companies started developing accessible games for disabled people
▶ Suddenly blind people were no longer limited to one genre (Interactive Fiction)
▶ Most of the games were conversions of puzzles or classic arcade games
This talk concentrates on sight loss but could be applied to other disabilities.

Many individuals and some small companies started developing accessible games for disabled people.

Suddenly blind people were no longer limited to one genre (Interactive Fiction).

Most of the games were conversions of puzzles or classic arcade games.

Some developers have been more original.
This talk concentrates on sight loss but could be applied to other disabilities.

Many individuals and some small companies started developing accessible games for disabled people.

Suddenly blind people were no longer limited to one genre (Interactive Fiction).

Most of the games were conversions of puzzles or classic arcade games.

Some developers have been more original.

**Drawback:** Segregation
The Present of Accessible Gaming

Ethos of the AGRIP Project

▶ Provide access to not only mainstream games, but their surrounding online community and development tools
▶ Give people Freedom to use and modify the game, support infrastructure and tools

AudioQuake

▶ An "Accessibility Layer" for Quake (id Software)
▶ A system for playing Internet multiplayer games
▶ A platform for programming modifications
▶ Only possible due to Open Source nature
▶ Provides and promotes inclusion

AGDev and other developments
Ethos of the AGRIP Project

Provide access to not only mainstream games, but their surrounding online community and development tools

Give people Freedom to use and modify the game, support infrastructure and tools

AudioQuake

An “Accessibility Layer” for Quake (id Software)

A system for playing Internet multiplayer games

A platform for programming modifications

Only possible due to Open Source nature

Provides and promotes inclusion

AGDev and other developments
Ethos of the AGRIP Project

- Provide access to not only mainstream games, but their surrounding online community and development tools
The Present of Accessible Gaming

Ethos of the AGRIP Project

▶ Provide access to not only mainstream games, but their surrounding online community and development tools
▶ Give people Freedom to use and modify the game, support infrastructure and tools
The Present of Accessible Gaming

Ethos of the AGRIP Project

- Provide access to not only mainstream games, but their surrounding online community and development tools
- Give people Freedom to use and modify the game, support infrastructure and tools

- AudioQuake

AudioQuake

An "Accessibility Layer" for Quake (id Software)

A system for playing Internet multiplayer games

A platform for programming modifications

Only possible due to Open Source nature

Provides and promotes inclusion

AGDev and other developments
Ethos of the AGRIP Project

- Provide access to not only mainstream games, but their surrounding online community and development tools
- Give people Freedom to use and modify the game, support infrastructure and tools

- AudioQuake
  - An “Accessibility Layer” for Quake (id Software)
The Present of Accessible Gaming

Ethos of the AGRIP Project

- Provide access to not only mainstream games, but their surrounding online community and development tools
- Give people Freedom to use and modify the game, support infrastructure and tools

AudioQuake

- An “Accessibility Layer” for Quake (id Software)
- A system for playing Internet multiplayer games
The Present of Accessible Gaming

Ethos of the AGRIP Project

- Provide access to not only mainstream games, but their surrounding online community and development tools
- Give people Freedom to use and modify the game, support infrastructure and tools
- AudioQuake
  - An “Accessibility Layer” for Quake (id Software)
  - A system for playing Internet multiplayer games
  - A platform for programming modifications
The Present of Accessible Gaming

Ethos of the AGRIP Project

- Provide access to not only mainstream games, but their surrounding online community and development tools
- Give people Freedom to use and modify the game, support infrastructure and tools

AudioQuake
- An “Accessibility Layer” for Quake (id Software)
- A system for playing Internet multiplayer games
- A platform for programming modifications
- Only possible due to Open Source nature
The Present of Accessible Gaming

Ethos of the AGRIP Project

▶ Provide access to not only mainstream games, but their surrounding online community and development tools
▶ Give people Freedom to use and modify the game, support infrastructure and tools

▶ AudioQuake
  ▶ An “Accessibility Layer” for Quake (id Software)
  ▶ A system for playing Internet multiplayer games
  ▶ A platform for programming modifications
  ▶ Only possible due to Open Source nature
  ▶ Provides and promotes inclusion
Ethos of the AGRIP Project

- Provide access to not only mainstream games, but their surrounding online community and development tools
- Give people Freedom to use and modify the game, support infrastructure and tools

- AudioQuake
  - An “Accessibility Layer” for Quake (id Software)
  - A system for playing Internet multiplayer games
  - A platform for programming modifications
  - Only possible due to Open Source nature
  - *Provides and promotes inclusion*

- AGDev and other developments
The Future of Accessible Gaming

AGRIP Developments

"Implicit Accessibility"

Level design

Audiogames and Accessible games gain weight in industry

Definition: "accessible games" vs. "audiogames"

John Carmack's Keynote point

Potential mobile market

Work of IGDA, AudioGames.net, AGDev and others

Education and Games get together

EA and NESTA study on games in education [NESTA and EA, 2005]

Potential to augment existing practises and assist in teaching
The Future of Accessible Gaming

- AGRIP Developments
AGRIP Developments

“Implicit Accessibility”
AGRIP Developments

- “Implicit Accessibility”
- Level design
The Future of Accessible Gaming

- AGRIP Developments
  - “Implicit Accessibility”
  - Level design
- Audiogames and Accessible games gain weight in industry
AGRIP Developments

“Implicit Accessibility”
Level design

Audiogames and Accessible games gain weight in industry

**Definition:** “accessible games” vs. “audiogames”
The Future of Accessible Gaming

- AGRIP Developments
  - “Implicit Accessibility”
  - Level design

- Audiogames and Accessible games gain weight in industry
  - **Definition:** “accessible games” vs. “audiogames”
  - John Carmack’s Keynote point
The Future of Accessible Gaming

- AGRIP Developments
  - “Implicit Accessibility”
  - Level design

- Audiogames and Accessible games gain weight in industry
  - **Definition:** “accessible games” vs. “audiogames”
  - John Carmack’s Keynote point
  - Potential mobile market
The Future of Accessible Gaming

- AGRIP Developments
  - “Implicit Accessibility”
  - Level design
- Audiogames and Accessible games gain weight in industry
  - **Definition**: “accessible games” vs. “audiogames”
  - John Carmack’s Keynote point
  - Potential mobile market
  - Work of IGDA, AudioGames.net, AGDev and others
The Future of Accessible Gaming

▶ AGRIP Developments
  ▶ “Implicit Accessibility”
  ▶ Level design

▶ Audiogames and Accessible games gain weight in industry
  ▶ **Definition:** “accessible games” vs. “audiogames”
  ▶ John Carmack’s Keynote point
  ▶ Potential mobile market
  ▶ Work of IGDA, AudioGames.net, AGDev and others

▶ Education and Games get together
AGRIP Developments
- “Implicit Accessibility”
- Level design

Audiogames and Accessible games gain weight in industry
- **Definition:** “accessible games” vs. “audiogames”
- John Carmack’s Keynote point
- Potential mobile market
- Work of IGDA, AudioGames.net, AGDev and others

Education and Games get together
- EA and NESTA study on games in education [NESTA and EA, 2005]
The Future of Accessible Gaming

- AGRIP Developments
  - “Implicit Accessibility”
  - Level design
- Audiogames and Accessible games gain weight in industry
  - Definition: “accessible games” vs. “audiogames”
  - John Carmack’s Keynote point
  - Potential mobile market
  - Work of IGDA, AudioGames.net, AGDev and others
- Education and Games get together
  - EA and NESTA study on games in education [NESTA and EA, 2005]
  - Potential to augment existing practises and assist in teaching
Global Information
Online Interaction

- Global Information
- Collaboration
Online Interaction

- Global Information
- Collaboration
- Web-based Communities
Presenting in Parallel with Local Navigation
Presenting in Parallel with Local Navigation

AudioQuake’s approach & Multimodality
Presenting in Parallel with Local Navigation

Abstract concepts and goals vs. Game-world objects

Narrative techniques

Objects, Characters guide the player used in Half-Life [Valve Software, 1998] and Monkey Business [ESP Softworks, 2001]

Not suitable for non-linear (i.e. multiplayer) games

Abstract techniques

Differentiates "real" objects and goals

Implicit landmarking, similar to place naming used in Unreal Tournament [Epic Games, 2004] and others
Presenting in Parallel with Local Navigation

- Abstract concepts and goals vs. Game-world objects
Presenting in Parallel with Local Navigation

- Abstract concepts and goals vs. Game-world objects
- Narrative techniques

Objects, Characters guide the player used in Half-Life [Valve Software, 1998] and Monkey Business [ESP Softworks, 2001]

Not suitable for non-linear (i.e. multiplayer) games

Abstract techniques

Differentiates "real" objects and goals

Implicit landmarking, similar to place naming used in Unreal Tournament [Epic Games, 2004] and others
Presenting in Parallel with Local Navigation

- Abstract concepts and goals vs. Game-world objects
- Narrative techniques
  - Objects, Characters guide the player
Presenting in Parallel with Local Navigation

- Abstract concepts and goals vs. Game-world objects
- Narrative techniques
  - Objects, Characters guide the player
Presenting in Parallel with Local Navigation

- Abstract concepts and goals vs. Game-world objects
- Narrative techniques
  - Objects, Characters guide the player
  - not suitable for non-linear (i.e. multiplayer) games
Presenting in Parallel with Local Navigation

- Abstract concepts and goals vs. Game-world objects
- Narrative techniques
  - Objects, Characters guide the player
  - not suitable for non-linear (i.e. multiplayer) games
- Abstract techniques
Presenting in Parallel with Local Navigation

- Abstract concepts and goals vs. Game-world objects
- Narrative techniques
  - Objects, Characters guide the player
  - not suitable for non-linear (i.e. multiplayer) games
- Abstract techniques
  - Differentiates “real” objects and goals
Presenting in Parallel with Local Navigation

- Abstract concepts and goals vs. Game-world objects
- Narrative techniques
  - Objects, Characters guide the player
  - not suitable for non-linear (i.e. multiplayer) games
- Abstract techniques
  - Differentiates “real” objects and goals
  - Implicit landmarking, similar to place naming used in Unreal Tournament [Epic Games, 2004] and others
Our Approach & Multimodality

AudioQuake approach

Waypoint markers

Different audio environments

Areas tagged with names

So far, users like different environments and tagging most

Multimodality

Other means than audio and video may be used

Examples include location-based games such as Demor [Velleman et al., 2004] and haptic feedback provided by the TiM project [Archambault and Burger, 2001]

AudioQuake and Braille displays
Our Approach & Multimodality

- AudioQuake approach

Other means than audio and video may be used. Examples include location-based games such as Demor [Velleman et al., 2004] and haptic feedback provided by the TiM project [Archambault and Burger, 2001]. AudioQuake and Braille displays.
Our Approach & Multimodality

- AudioQuake approach
  - Waypoint markers

- Multimodality
  - Other means than audio and video may be used
  - Examples include location-based games such as Demor [Velleman et al., 2004] and haptic feedback provided by the TiM project [Archambault and Burger, 2001]
  - AudioQuake and Braille displays
Our Approach & Multimodality

- AudioQuake approach
  - Waypoint markers
  - Different audio environments

- Multimodality
  - Other means than audio and video may be used
  - Examples include location-based games such as Demor [Velleman et al., 2004] and haptic feedback provided by the TiM project [Archambault and Burger, 2001]
  - AudioQuake and Braille displays
Our Approach & Multimodality

- AudioQuake approach
  - Waypoint markers
  - Different audio environments
  - Areas tagged with names

- Multimodality
  - Other means than audio and video may be used
  - Examples include location-based games such as Demor [Velleman et al., 2004] and haptic feedback provided by the TiM project [Archambault and Burger, 2001]
  - AudioQuake and Braille displays
Our Approach & Multimodality

- AudioQuake approach
  - Waypoint markers
  - Different audio environments
  - Areas tagged with names
  - So far, users like different environments and tagging most

- Multimodality
  - Other means than audio and video may be used
  - Examples include location-based games such as Demor [Velleman et al., 2004] and haptic feedback provided by the TiM project [Archambault and Burger, 2001]
  - AudioQuake and Braille displays
Our Approach & Multimodality

- **AudioQuake approach**
  - Waypoint markers
  - Different audio environments
  - Areas tagged with names
  - So far, users like different environments and tagging most

- **Multimodality**
  - Other means than audio and video may be used
  - Examples include location-based games such as Demor [Velleman et al., 2004] and haptic feedback provided by the TiM project [Archambault and Burger, 2001]
  - AudioQuake and Braille displays
Our Approach & Multimodality

- AudioQuake approach
  - Waypoint markers
  - Different audio environments
  - Areas tagged with names
  - So far, users like different environments and tagging most

- Multimodality
  - Other means than audio and video may be used

Examples include location-based games such as Demor [Velleman et al., 2004] and haptic feedback provided by the TiM project [Archambault and Burger, 2001]. AudioQuake and Braille displays.
Our Approach & Multimodality

- **AudioQuake approach**
  - Waypoint markers
  - Different audio environments
  - Areas tagged with names
  - So far, users like different environments and tagging most

- **Multimodality**
  - Other means than audio and video may be used
  - Examples include location-based games such as Demor [Velleman et al., 2004] and haptic feedback provided by the TiM project [Archambault and Burger, 2001]
Our Approach & Multimodality

- AudioQuake approach
  - Waypoint markers
  - Different audio environments
  - Areas tagged with names
  - So far, users like different environments and tagging most

- Multimodality
  - Other means than audio and video may be used
  - Examples include location-based games such as Demor [Velleman et al., 2004] and haptic feedback provided by the TiM project [Archambault and Burger, 2001]
  - AudioQuake and Braille displays
Communication
Collaboration

- Communication
- Positional Information and Strategy
Communication

Traditional text-based messages... pose a number of problems

▶ Stops player being able to move (applicable to other games)
▶ Use of Text-to-Speech further overloads the sound "channel"
   of presenting information

Potential solutions

▶ In-play shortcut keys to quickly review important messages
▶ Use of VoIP for faster, less invasive (to gameplay)
   communication
▶ Braille display, with techniques such as those used in BIRC [Hampel et al., 1999]
Traditional text-based messages... pose a number of problems
Traditional text-based messages... pose a number of problems

- Stops player being able to move (applicable to other games)
Traditional text-based messages... pose a number of problems

- Stops player being able to move (applicable to other games)
- Use of Text-to-Speech further overloads the sound “channel” of presenting information
Traditional text-based messages... pose a number of problems
- Stops player being able to move (applicable to other games)
- Use of Text-to-Speech further overloads the sound “channel” of presenting information

Potential solutions
Traditional text-based messages… pose a number of problems
- Stops player being able to move (applicable to other games)
- Use of Text-to-Speech further overloads the sound “channel” of presenting information

Potential solutions
- In-play shortcut keys to quickly review important messages
Traditional text-based messages... pose a number of problems

- Stops player being able to move (applicable to other games)
- Use of Text-to-Speech further overloads the sound “channel” of presenting information

Potential solutions

- In-play shortcut keys to quickly review important messages
- Use of VoIP for faster, less invasive (to gameplay) communication
Communication

- Traditional text-based messages... pose a number of problems
  - Stops player being able to move (applicable to other games)
  - Use of Text-to-Speech further overloads the sound “channel” of presenting information

- Potential solutions
  - In-play shortcut keys to quickly review important messages
  - Use of VoIP for faster, less invasive (to gameplay) communication
  - Braille display, with techniques such as those used in BIRC [Hampel et al., 1999]
Local strategic information is presented

Use of RADAR and similar metaphors [Atkinson et al., 2006]

Overall strategic information not presented

Inherent problem in first-person games (as pointed out by [Yang and Olson, 2002])

More pronounced for disabled people

Current overview techniques have no accessible counterpart (discounting the use of external devices, which could be problematic)

An area for future work
Positional Information and Strategy

- Local strategic information is presented

Use of RADAR and similar metaphors [Atkinson et al., 2006]

Overall strategic information not presented

Inherent problem in first-person games (as pointed out by [Yang and Olson, 2002])

More pronounced for disabled people

Current overview techniques have no accessible counterpart (discounting the use of external devices, which could be problematic)

An area for future work
Local strategic information is presented

Use of RADAR and similar metaphors [Atkinson et al., 2006]
Local strategic information is presented
Use of RADAR and similar metaphors [Atkinson et al., 2006]
Overall strategic information *not* presented
Positional Information and Strategy

- Local strategic information is presented
- Use of RADAR and similar metaphors [Atkinson et al., 2006]
- Overall strategic information *not* presented
- Inherent problem in first-person games (as pointed out by [Yang and Olson, 2002])
Positional Information and Strategy

- Local strategic information is presented
- Use of RADAR and similar metaphors [Atkinson et al., 2006]
- Overall strategic information *not* presented
- Inherent problem in first-person games (as pointed out by [Yang and Olson, 2002])
  - More pronounced for disabled people
Positional Information and Strategy

- Local strategic information is presented
- Use of RADAR and similar metaphors [Atkinson et al., 2006]
- Overall strategic information *not* presented
- Inherent problem in first-person games (as pointed out by [Yang and Olson, 2002])
  - More pronounced for disabled people
- Current overview techniques have no accessible counterpart
  (discounting the use of external devices, which could be problematic)
Positional Information and Strategy

- Local strategic information is presented
- Use of RADAR and similar metaphors [Atkinson et al., 2006]
- Overall strategic information *not* presented
- Inherent problem in first-person games (as pointed out by [Yang and Olson, 2002])
  - More pronounced for disabled people
- Current overview techniques have no accessible counterpart (discounting the use of external devices, which could be problematic)
- An area for future work
Web-Based Communities

Often the websites of gaming communities are not accessible:

- Non-compliance with accessibility standards (e.g., use of flash, tables for layout, graphics with no alternative text).

An online extension to AudioQuake was developed, allowing stats-tracking in a similar way to sites for other mainstream games.

Online Interaction

Web-based Communities
Often the websites of gaming communities are not accessible
Web-Based Communities

- Often the websites of gaming communities are not accessible
  - Non-compliance with accessibility standards (e.g. use of flash, tables for layout, graphics with no alternative text)
Often the websites of gaming communities are not accessible
  ▶ Non-compliance with accessibility standards (e.g. use of flash, tables for layout, graphics with no alternative text)
  ▶ Attitudes towards disabled gamers (if any!)
Web-Based Communities

- Often the websites of gaming communities are not accessible
  - Non-compliance with accessibility standards (e.g. use of flash, tables for layout, graphics with no alternative text)
  - Attitudes towards disabled gamers (if any!)
- An online extension to AudioQuake was developed
Often the websites of gaming communities are not accessible
  ▶ Non-compliance with accessibility standards (e.g. use of flash, tables for layout, graphics with no alternative text)
  ▶ Attitudes towards disabled gamers (if any!)

An online extension to AudioQuake was developed

This allows stats-tracking in a similar way to sites for other mainstream games
Web-Based Communities

Often the websites of gaming communities are not accessible
- Non-compliance with accessibility standards (e.g. use of flash, tables for layout, graphics with no alternative text)
- Attitudes towards disabled gamers (if any!)

An online extension to AudioQuake was developed
This allows stats-tracking in a similar way to sites for other mainstream games
Web-Based Communities

- Often the websites of gaming communities are not accessible
  - Non-compliance with accessibility standards (e.g. use of flash, tables for layout, graphics with no alternative text)
  - Attitudes towards disabled gamers (if any!)
- An online extension to AudioQuake was developed
- This allows stats-tracking in a similar way to sites for other mainstream games
Meaningful Competition?

Overall there is a long way to go. In simple Deathmatch games, results have been good, e.g. 8 (advanced blind player) vs. 10 (sighted player) “frags” – only a 20% difference in scores! Performance of blind gamers was let down by implementation-specific technical limitations, such as input speed and fast output cognition.
Meaningful Competition?

- Overall there is a long way to go
Overall there is a long way to go

In simple Deathmatch games, results have been good
Overall there is a long way to go

In simple Deathmatch games, results have been good
  • e.g. 8 (advanced blind player) vs. 10 (sighted player) “frags” – only a 20% difference in scores!
Overall there is a long way to go

In simple Deathmatch games, results have been good
- e.g. 8 (advanced blind player) vs. 10 (sighted player) “frags” – only a 20% difference in scores!

Performance of blind gamers was let down by
Overall there is a long way to go

In simple Deathmatch games, results have been good
  e.g. 8 (advanced blind player) vs. 10 (sighted player) “frags” – only a 20% difference in scores!

Performance of blind gamers was let down by
  Implementation-specific technical limitations
Meaningful Competition?

- Overall there is a long way to go
- In simple Deathmatch games, results have been good
  - e.g. 8 (advanced blind player) vs. 10 (sighted player) “frags” – only a 20% difference in scores!
- Performance of blind gamers was let down by
  - Implementation-specific technical limitations
  - Input Speed
Overall there is a long way to go

In simple Deathmatch games, results have been good
  - e.g. 8 (advanced blind player) vs. 10 (sighted player) “frags” – only a 20% difference in scores!

Performance of blind gamers was let down by
  - Implementation-specific technical limitations
  - Input Speed
  - Fast Output Cognition
Development Tools: Educational Integration?

Programming jobs no longer as accessible as they were.

IDEs can be inaccessible [Sánchez and Baloian, 2005].

Whole metaphors for programming can be inaccessible [Siegfried, 2002].

Standard techniques of teaching programming not as accessible as before.

Meanwhile, sighted people can learn in a more entertaining way from earlier ages.

AudioQuake represents an even playing field for this style of teaching programming.

Feedback from ICC 2005.
Programming jobs no longer as accessible as they were
Programming jobs no longer as accessible as they were
  IDEs can be inaccessible [Sánchez and Baloian, 2005]
Programming jobs no longer as accessible as they were

- IDEs can be inaccessible [Sánchez and Baloian, 2005]
- Whole metaphors for programming can be inaccessible [Siegfried, 2002]
Programming jobs no longer as accessible as they were
  ▶ IDEs can be inaccessible [Sánchez and Baloian, 2005]
  ▶ Whole metaphors for programming can be inaccessible [Siegfried, 2002]
  ▶ Standard techniques of teaching programming not as accessible as before
Programming jobs no longer as accessible as they were
  IDEs can be inaccessible [Sánchez and Baloian, 2005]
  Whole metaphors for programming can be inaccessible [Siegfried, 2002]

Standard techniques of teaching programming not as accessible as before

Meanwhile, sighted people can learn in a more entertaining way from earlier ages
Programming jobs no longer as accessible as they were
  ▶ IDEs can be inaccessible [Sánchez and Baloian, 2005]
  ▶ Whole metaphors for programming can be inaccessible [Siegfried, 2002]

Standard techniques of teaching programming not as accessible as before

Meanwhile, sighted people can learn in a more entertaining way from earlier ages

AudioQuake represents an even playingfield for this style of teaching programming
Programming jobs no longer as accessible as they were
  - IDEs can be inaccessible [Sánchez and Baloian, 2005]
  - Whole metaphors for programming can be inaccessible [Siegfried, 2002]
- Standard techniques of teaching programming not as accessible as before
- Meanwhile, sighted people can learn in a more entertaining way from earlier ages
- AudioQuake represents an even playingfield for this style of teaching programming
- Feedback from ICC 2005
Further Work

1. Improve existing techniques
2. Generalisation & relation to other current research
3. Accessible map editing
Further Work

- Improve existing techniques
Further Work

- Improve existing techniques
- Generalisation & relation to other current research
Further Work

- Improve existing techniques
- Generalisation & relation to other current research
- Accessible map editing
User Survey

This small survey covered 18 users of AudioQuake.

Conclusions

Further Work
This small survey covered 18 users of AudioQuake.
Conclusions

What accessible (and audio) games are

How multiplayer accessibility in particular can be realised

Non-game aspects

Educational uses
Conclusions

▶ What accessible (and audio) games are
Conclusions

- What accessible (and audio) games are
- How multiplayer accessibility in particular can be realised
Conclusions

- What accessible (and audio) games are
- How multiplayer accessibility in particular can be realised
- Non-game aspects
Conclusions

- What accessible (and audio) games are
- How multiplayer accessibility in particular can be realised
- Non-game aspects
- Educational uses
Acknowledgements

Id Software

The Quake & QuakeWorld community

The AGRIP community

The Grundy Educational Trust
id Software
Acknowledgements

- id Software
- The Quake & QuakeWorld community
Acknowledgements

- id Software
- The Quake & QuakeWorld community
- The AGRIP community
Acknowledgements

- id Software
- The Quake & QuakeWorld community
- The AGRIP community
- The Grundy Educational Trust
Thanks for listening!
Any Questions?


Monkey business. 

Pragmatic solutions for better integration of the visually impaired in virtual communities. 

NESTA and EA (2005). 
Futurelab. 

